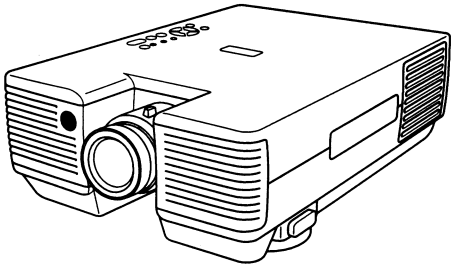
TENTATIVE

SHARP

SERVICE MANUAL
SERVICE-ANLEITUNG



PAL/SECAM/NTSC SYSTEM
LCD PROJECTOR
LCD PROJEKTOR

MODELS
MODELLE

XV-Z1E/A

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

Im Interesse der Benutzersicherheit (erforderliche Sicherheitsregeln in einigen Ländern) muß das Gerät in seinen Originalzustand gebracht werden. Außerdem dürfen für die spezifizierten Bauteile nur identische Teile verwendet werden.

SHARP CORPORATION

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NOTE TO SERVICE PERSONNEL

UV-RADIATION PRECAUTION

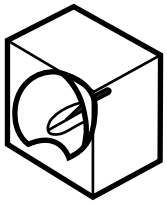
The light source, metal halide lamp, in the LCD projector emits small amounts of UV-Radiation.

AVOID DIRECT EYE AND SKIN EXPOSURE.

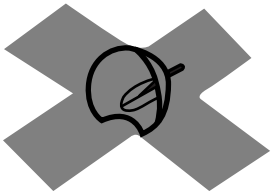
To ensure safety please adhere to the following:

1. Be sure to wear sun-glasses when servicing the projector with the lamp turned “on” and the top enclosure removed.

2. Do not operate the lamp outside of the lamp housing.



3. Do not operate for more than 2 hours with the enclosure removed.



UV-Radiation and Medium Pressure Lamp Precautions

1. Be sure to disconnect the AC plug when replacing the lamp.
2. Allow one hour for the unit to cool down before servicing.
3. Replace only with same type lamp. Type CLMPF0042DE01 rated 75V/265W.
4. The lamp emits small amounts of UV-Radiation, avoid direct-eye contact.
5. The medium pressure lamp involves a risk of explosion. Be sure to follow installation instructions described below and handle the lamp with care.

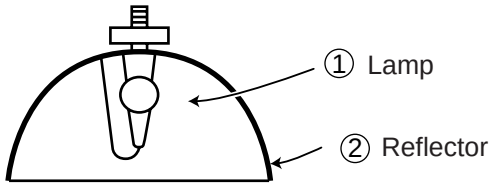
■ Lamp Replacement

Note:

Since the lamp reaches a very high temperature during units operation replacement of the lamp should be done at least one hour after the power has been turned off. (to allow the lamp to cool off.)

Installing the new lamp, make sure not to touch the lamp (bulb) replace the lamp by holding its reflector ②.

[Use original replacement only.]



DANGER ! — Never turn the power on without the lamp to avoid electric-shock or damage of the devices since the stabilizer generates high voltages at its start.

Specifications

Product Type		LCD Projector
Model		XV-Z1E
Video system		PAL/SECAM/NTSC 3.58/NTSC 4.43
Display method		LCD panel × 3, RGB optical shutter method
LCD panel	Panel size	3.3 cm (1.3″) (20.0 (H) × 26.7 (W) mm)
	Display method	Translucent TN liquid crystal panels
	Drive method	TFT (Thin Film Transistor) Active Matrix panels
	No. of pixels	307,200 dots (480 (V) × 640 (H))
Lens		F2.5 to 3.6 , f = 47 to 76 mm
Projection lamp		250 W Metal halide
Contrast ratio		100:1
Video input signal		RCA Connector: VIDEO, composite video, 1.0 Vp-p, sync negative, 75 Ω terminated RCA Connector: AUDIO, 0.5 Vrms, more than 22 kΩ
S-video input signal		4-pin mini DIN connector Y (luminance signal): 1.0 Vp-p, sync negative, 75 Ω terminated C (chrominance signal): burst 0.286 Vp-p, 75 Ω terminated
Video (monitor) output signal		RCA Connector: VIDEO, composite video, 1.0 Vp-p, sync negative, 75 Ω terminated RCA Connector: AUDIO, 0.5 Vrms, less than 2.2 kΩ
Component video input signal		RCA Connector: Y (luminance signal): 1.0 Vp-p, sync negative, 75 Ω terminated C_b (B-Y) (chrominance signal): 0.7 Vp-p, 75 Ω terminated C_r (R-Y) (chrominance signal): 0.7 Vp-p, 75 Ω terminated RCA Connector: AUDIO 0.5 Vrms, more than 22 kΩ (stereo)
Horizontal resolution		500 TV lines (video input)
Audio output		3 W+3 W (stereo)
Speaker system		3″ (8 cm) round × 2
Rated voltage		AC 200–240V
Rated frequency		50/60 Hz
Power consumption		340 W
Standby consumption		4 W
Operating temperature		+5°C to +40°C
Storage temperature		−20°C to +60°C
Cabinet		Plastic
Dimensions (W × D × H)		264 × 388 × 120 mm
Weight		7.5 kg
Supplied accessories		Remote control unit, two AAA batteries, lens cover (installed), extra air filter (installed), AC cord, AV cable, 21 pin RCA conversion adaptor (Europe only)
Replacement parts		Remote control unit (RRMCG1412CESA), air filter (PFILD0067CEZZ), AC cord, AV cable (QCNW-3740CEZZ), 21 pin RCA conversion adaptor (Europe only)

Our projector uses LCD (Liquid Crystal Display) panels. These very sophisticated panels contain 307,200 dots (× RGB) TFTs. (Thin Film Transistors). As with any high technology electronic equipment such as large screen TVs, video systems and/or video cameras, there are certain acceptable tolerances that the equipment must conform to.
This unit has some inactive TFTs within acceptable tolerances, which may result in illuminated dots on the picture screen.
This will not affect the picture quality or the life expectancy of the unit.

*Specifications are subject to change without notice.

Specifications

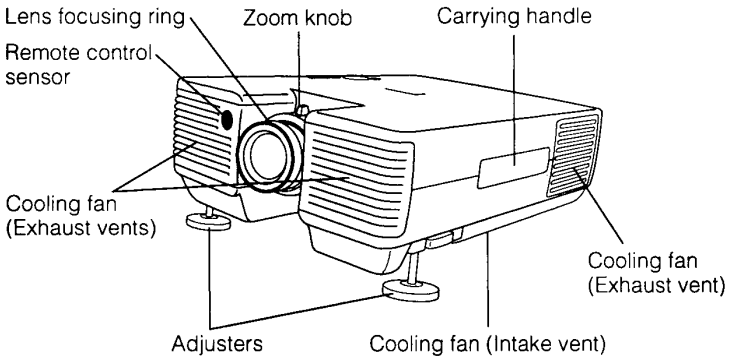
Product Type		LCD Projector
Model		XV-Z1A
Video system		PAL/SECAM/NTSC 3.58/NTSC 4.43
Display method		LCD panel × 3, RGB optical shutter method
LCD panel	Panel size	3.3 cm (1.3") (20.0 (H) × 26.7 (W) mm)
	Display method	Translucent TN liquid crystal panels
	Drive method	TFT (Thin Film Transistor) Active Matrix panels
	No. of pixels	311,696 dots (484 (V) × 644 (H))
Lens		F2.5 to 3.6 , f = 47 to 76 mm
Projection lamp		240 W Metal halide
Contrast ratio		100:1
Video input signal		RCA Connector: VIDEO, composite video, 1.0 Vp-p, sync negative, 75 Ω terminated RCA Connector: AUDIO, 0.5 Vrms, more than 22 kΩ
S-video input signal		4-pin mini DIN connector Y (luminance signal): 1.0 Vp-p, sync negative, 75 Ω terminated C (chrominance signal): burst 0.286 Vp-p, 75 Ω terminated
Video (monitor) output signal		RCA Connector: VIDEO, composite video, 1.0 Vp-p, sync negative, 75 Ω terminated RCA Connector: AUDIO, 0.5 Vrms, less than 2.2 kΩ
Component video input signal		RCA Connector: Y (luminance signal): 1.0 Vp-p, sync negative, 75 Ω terminated C_b (B-Y) (chrominance signal): 0.7 Vp-p, 75 Ω terminated C_r (R-Y) (chrominance signal): 0.7 Vp-p, 75 Ω terminated RCA Connector: AUDIO 0.5 Vrms, more than 22 kΩ (stereo)
Horizontal resolution		480 TV lines (video input)
Audio output		3 W + 3 W (stereo)
Speaker system		3" (8 cm) round × 2
Rated voltage		AC 200–240V
Rated frequency		50/60 Hz
Power consumption		340 W
Standby consumption		4 W
Operating temperature		+5°C to +40°C
Storage temperature		−20°C to +60°C
Cabinet		Plastic
Dimensions (W × D × H)		264 × 388 × 120 mm
Weight		7.5 kg
Supplied accessories		Remote control unit, two AAA batteries, lens cover (installed), extra air filter (installed), AC cord, AV cable
Replacement parts		Remote control unit (RRMCG1412CESA), air filter (PFILD0067CEZZ), AC cord, AV cable (QCNW-3740CEZZ)

Our projector uses LCD (Liquid Crystal Display) panels. These very sophisticated panels contain 311,696 dots (× RGB) TFTs. (Thin Film Transistors). As with any high technology electronic equipment such as large screen TVs, video systems and/or video cameras, there are certain acceptable tolerances that the equipment must conform to.
This unit has some inactive TFTs within acceptable tolerances, which may result in illuminated dots on the picture screen.
This will not affect the picture quality or the life expectancy of the unit.

*Specifications are subject to change without notice.

Location of Controls

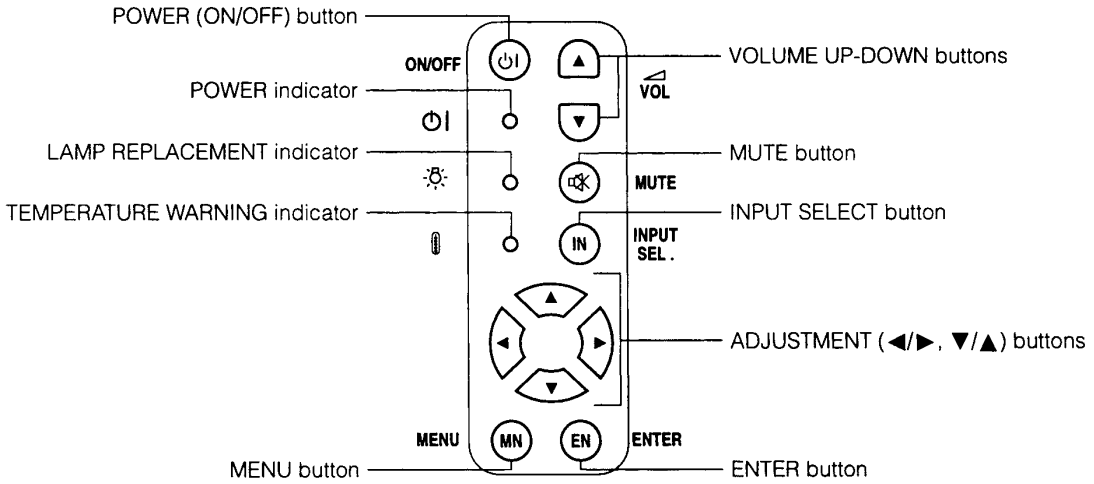
FRONT VIEW



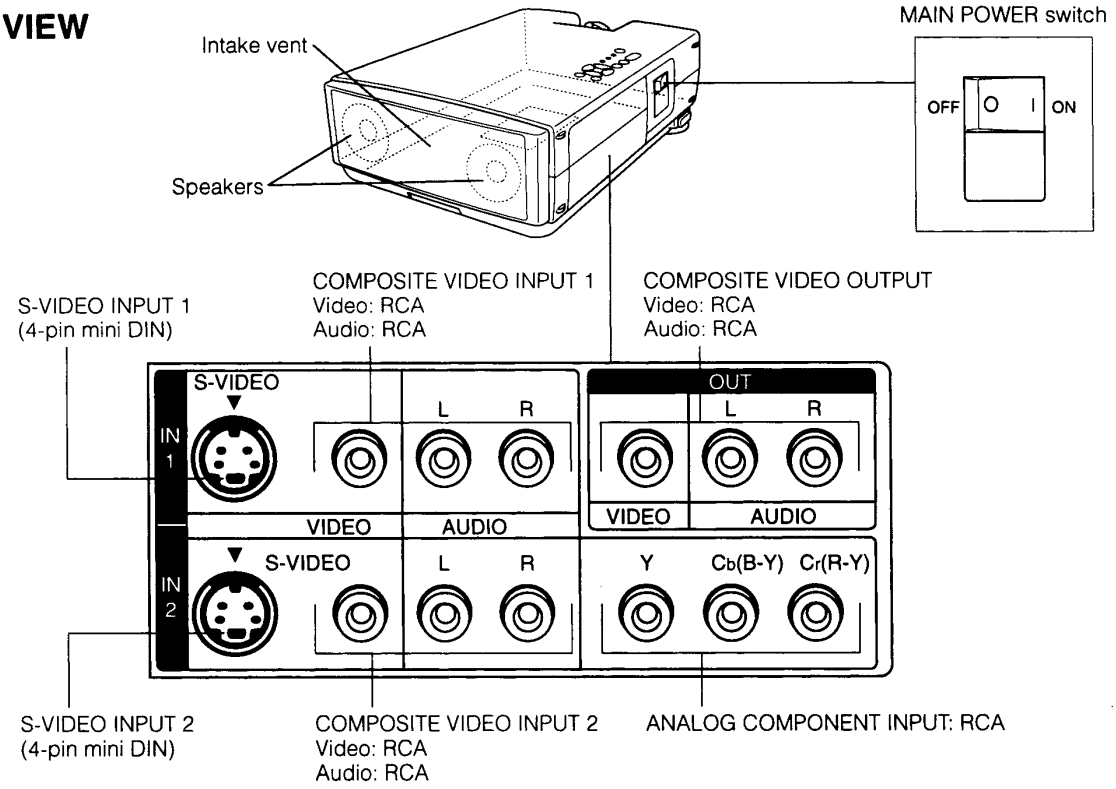
Cautions:

- The exhaust vent, the lamp cage cover and adjacent areas may be extremely hot during projector operation. To prevent injury, do not touch these areas until they have sufficiently cooled.
- Allow at least 10 cm of space between the cooling fan (exhaust vent) and the wall.
- If the cooling fan becomes obstructed, a protection device will automatically turn off the projector lamp. This does not indicate a malfunction. Remove the projector plug from the wall socket and wait 10 minutes. Then turn on the power by plugging the cord back in. This will return the projector to its normal mode.

OPERATION PANEL ON TOP OF PROJECTOR

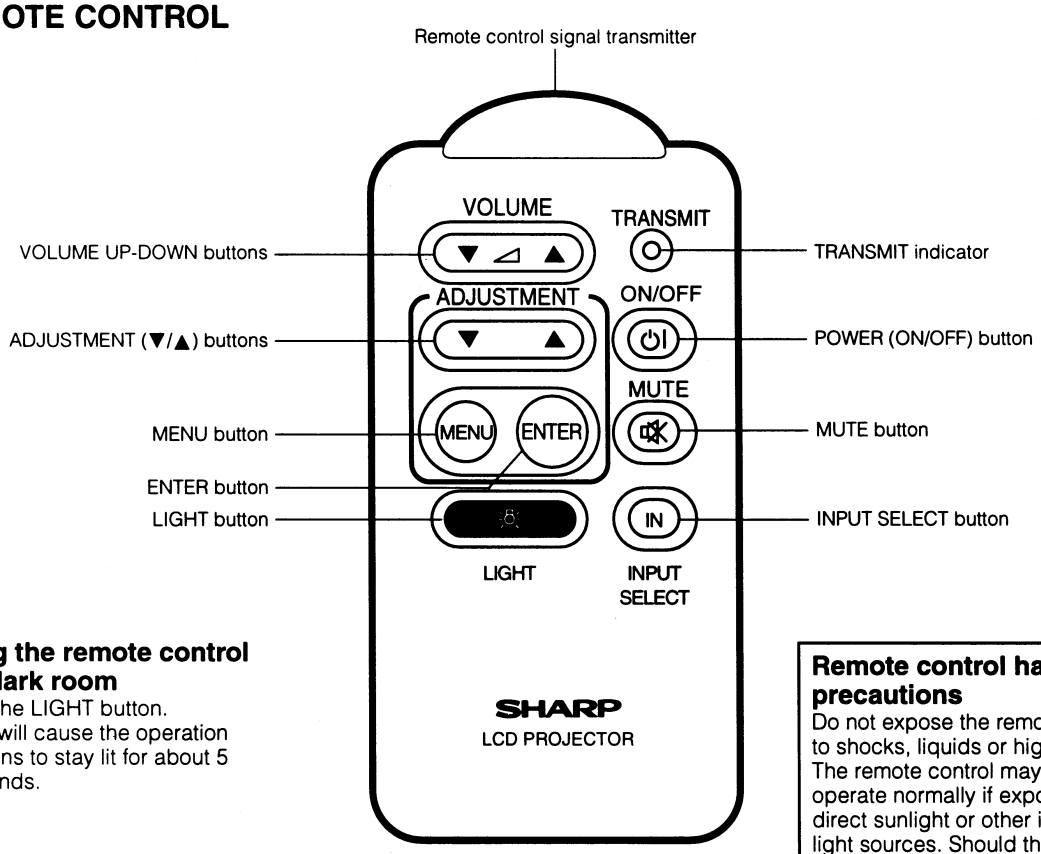


REAR VIEW



Operating the Wireless Mouse Remote Control

REMOTE CONTROL



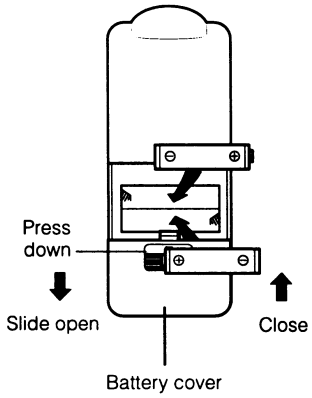
Using the remote control in a dark room

Press the LIGHT button.

- This will cause the operation buttons to stay lit for about 5 seconds.

Remote control handling precautions

Do not expose the remote control to shocks, liquids or high humidity. The remote control may not operate normally if exposed to direct sunlight or other intense light sources. Should this happen, reposition the light source or the LCD Projector.



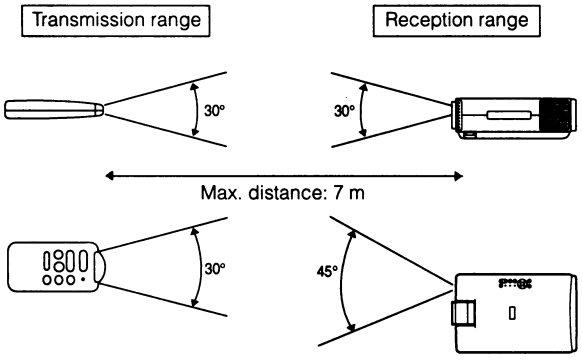
Inserting the batteries

Remove the battery cover as shown and insert two AAA size batteries making sure the polarity matches the (+) and (−) marks inside the battery compartment.

Notes:

Incorrect use of batteries may cause them to leak or burst.

- Insert the batteries with the (+) and (−) polarities as indicated.
- Remove the batteries if the remote control will not be operated for an extended period of time.
- Maintain the batteries in clean condition.
- Do not mix different brands of batteries. The life expectancy of the new batteries will be shortened and the old batteries may leak.
- When the batteries have been used up, remove them immediately to prevent leakage and damage. Leaked battery fluid may irritate the skin. Remove any battery fluid by wiping with a cloth.
- Due to storage conditions and the shelf life of the supplied batteries, they may run out after a short time. Replace them with new batteries as soon as possible.



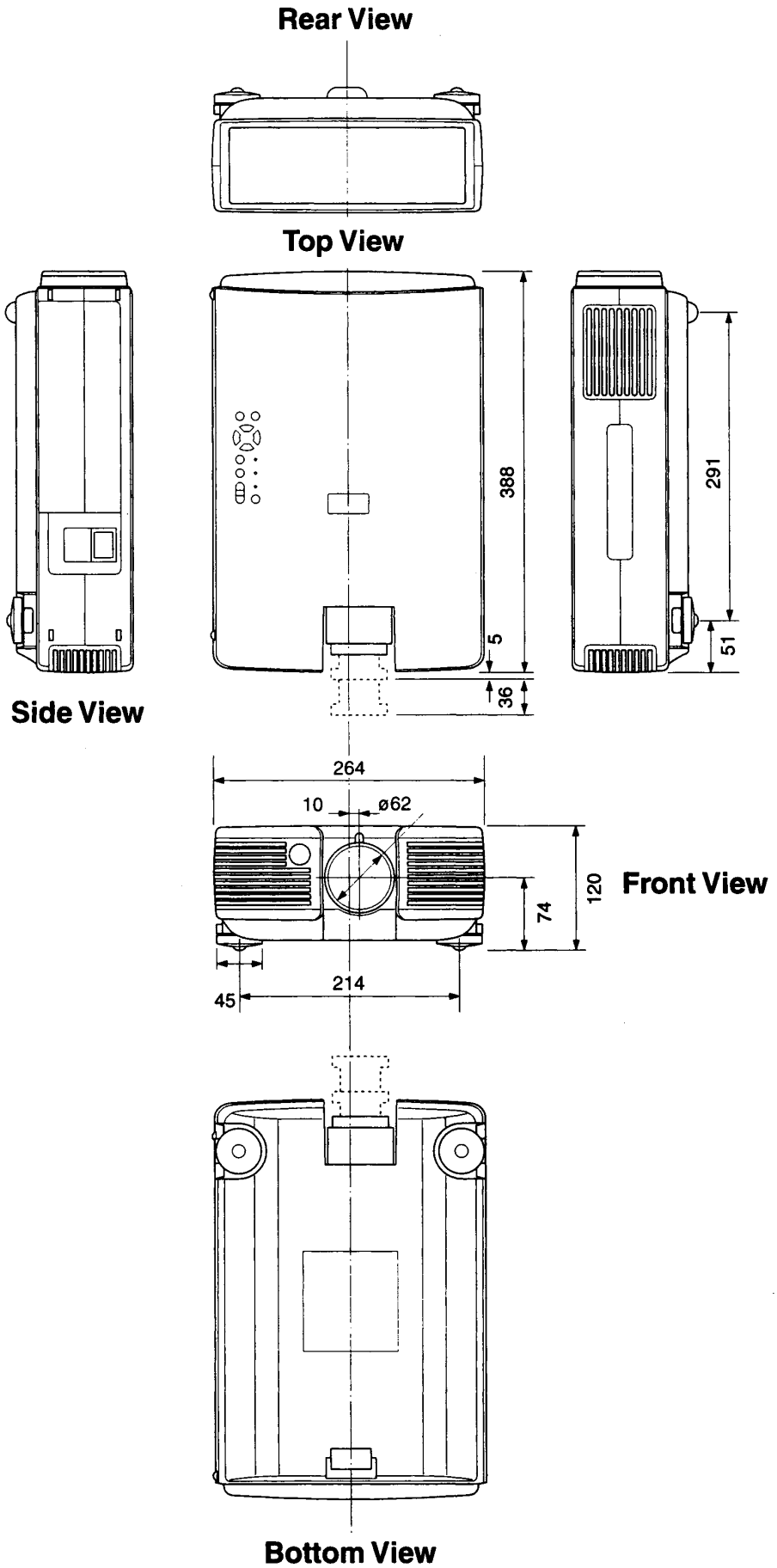
Remote control positioning

Use the remote control as shown in the figures on the left.

Note:

- The signal from the remote control can be reflected off the screen for easy operation. However, the effective distance of the signal may differ due to the screen material.

Demensions



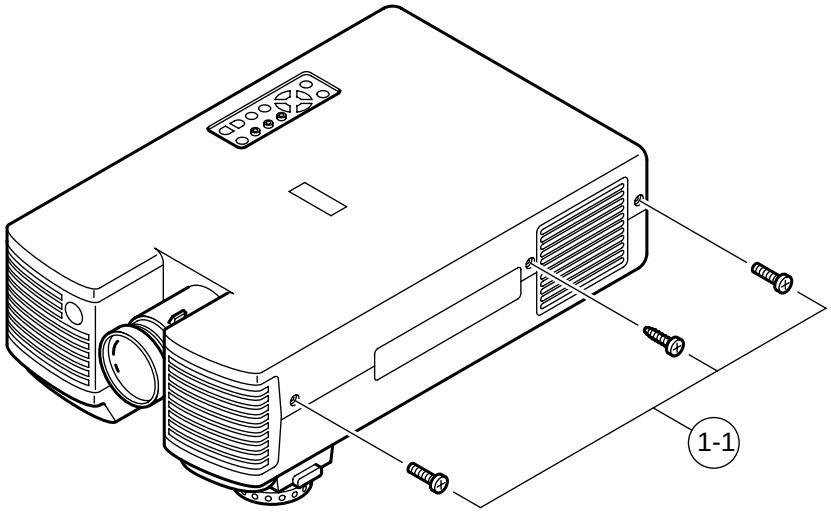
[Units: mm]

REMOVING OF MAJOR PARTS

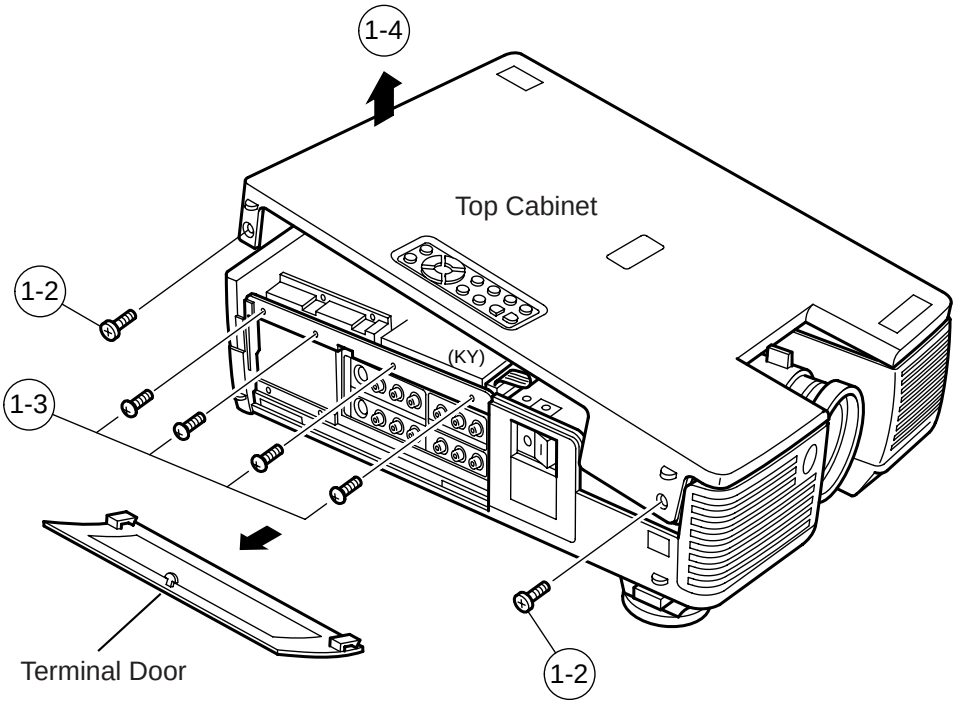
■ Before starting this job, detach the lamp cage unit and the filter cover.

1. Removing the top cabinet

1-1. Remove the three screws at the carrying handle side.

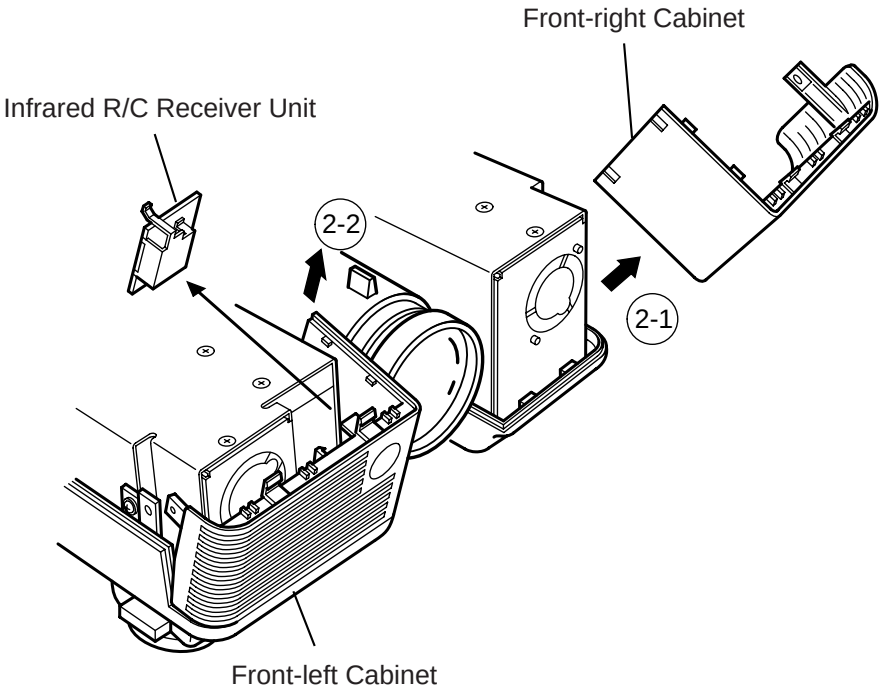


1-2. Remove the two screws at the terminals side.
1-3. Detach the terminal door, and remove the four screws off the terminal cover.
1-4. Slowly lift the back of the top cabinet and disconnect the operation key unit connector (KY). Pull up and away the top cabinet.
1-5. Place the top cabinet upside down. Remove the four screws off the operation key unit. Take out the operation key unit.



2. Removing the front cabinets

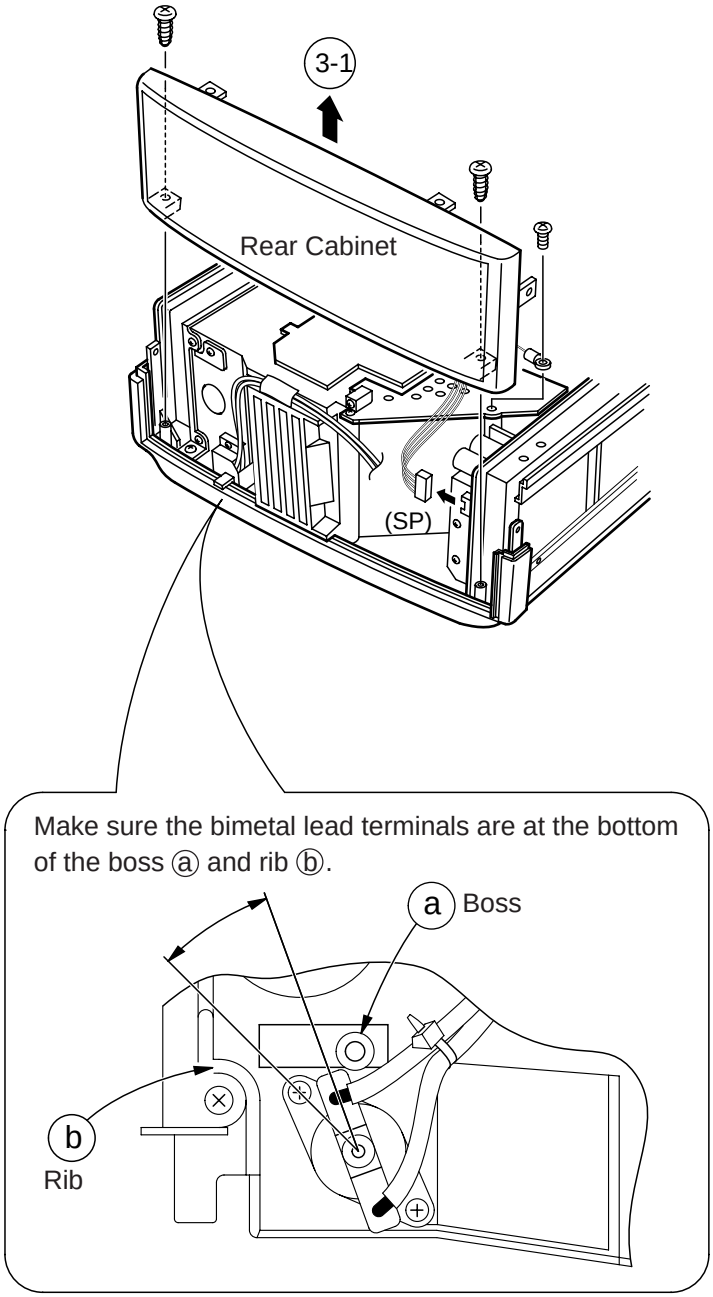
2-1. Tilt the front-right cabinet forward. Pull it up out of position.
2-2. Tilt the front-left cabinet forward. Disconnect the infrared R/C receiver unit. Pull up the cabinet out of position.



3. Removing the rear cabinet and video terminal cover

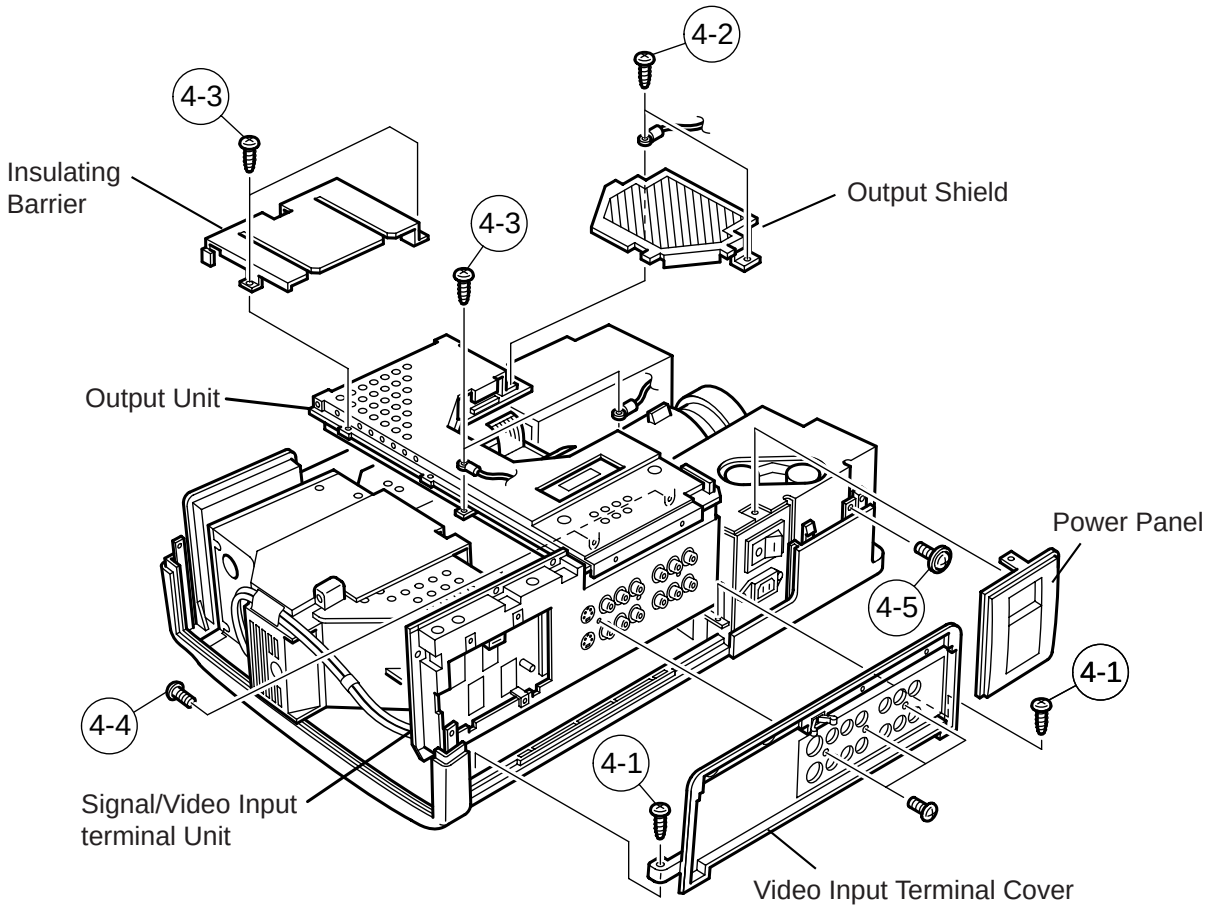
3-1. Remove the two screws off the rear cabinet and the screw from the static ground lead. Pull up the cabinet and disconnect the speaker connector (SP). Now the rear cabinet is free.

3-2. Remove the four screws off the video terminal cover. Detach the cover.



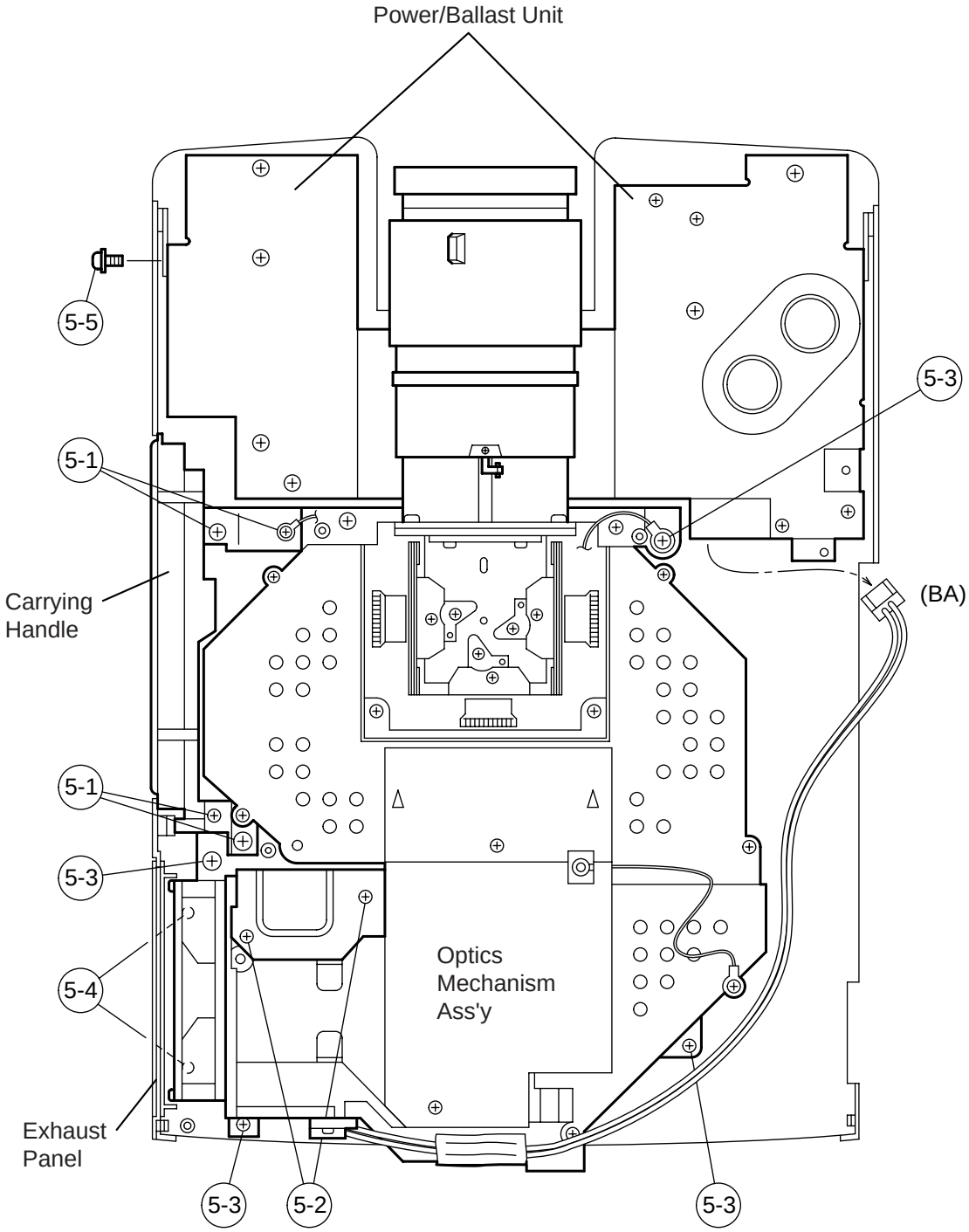
4. Removing the PWBs

4-1. Remove the two screws that fix the PC terminal cover to the bottom cabinet.
4-2. Remove the two screws off the output shield. Take out the output shield and disconnect the R-LCD, G-LCD and B-LCD connectors (RP, GP, and BP).
4-3. Remove the four screws off the output unit. Disconnect the insulating barrier, the ground leads and the connectors (FN, Q, LL, FF, LF, BL, RC and EA). Pull up and away the output unit and the signal/Video Input terminal unit.
4-4. Remove the screw off the back of the output unit. Separate this unit from the signal/PC terminal unit.
4-5. Remove the screw off the bottom cabinet and the screw off the power panel. Now take out the power panel.



5. Removing the optics mechanism assembly

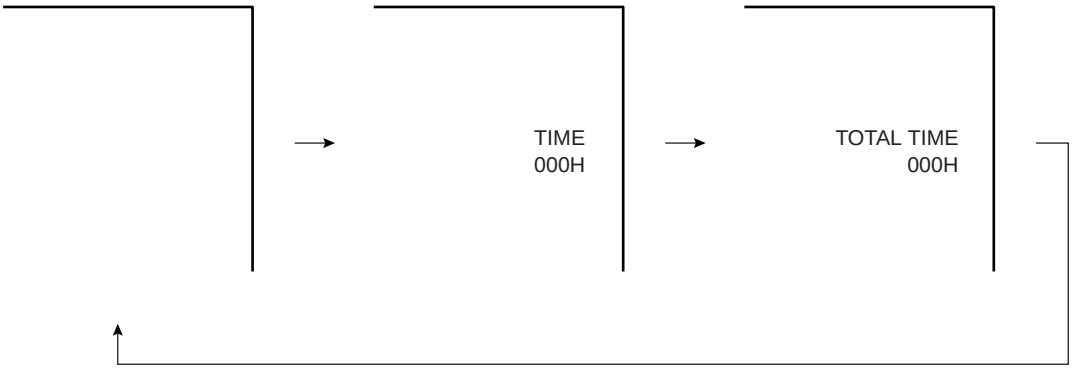
5-1. Remove the two screws off the angles A and B of the carrying handle. Detach the carrying handle.
5-2. Remove the two screws off the lamp socket holder. Take out the lamp socket.
5-3. Disconnect the bimetal connector (BA). Remove the four screws off the optics mechanism assembly, and pull up and away this assembly.
5-4. Remove the two screws off the exhaust panel. Separate the panel from the bottom cabinet.
5-5. Remove the screw off the power/ballast unit assembly. Pull up and away the unit.



CONTROLLING THE TOTAL OPERATING HOURS OF THE LAMP

The following control is carried out when the lamp has been used for 1900 hours and 2000 hours.

1. **After 1900-hour use**
   When the power is turned on, "LAMP" appears in the on-screen display for about 1 minute (flashing in yellow) and the lamp LED indicator lights up in red. When the 1,900-hour point comes up during use of the unit, the "LAMP" display starts flashing in yellow on the screen for 1 minute at the very 1,900-hour point. Now the lamp LED indicator changes from green to red.
2. **After 2000-hour use**
   When the power is turned on, "LAMP" appears in the on-screen display for about 5 minutes (flashing in red) and the lamp LED indicator lights up in red. Five minutes thereafter, the power turns itself off and the unit is interrupted. When the 2000-hour point comes up during use of the unit, the "LAMP" display starts flashing in red on the screen for 5 minutes at the very 2000-hour point. Five minutes later, the power turns itself off and the unit is interrupted. (The lamp LED indicator stays red since the 1900-hour point.)
   If you try to turn on the power three times after the 2000-hour point, the unit remains off.
3. **When the 2000-hour point comes up, take the following steps.**
   Replace the lamp with new one. While holding down both the "VOL."" and "ADJ."" keys on the unit, turn on the main power switch (located on the side of the unit). The lamp operating hourmeter is now reset to zero. Turn on the unit and make sure the time display shows "0000H".
4. **Displaying the total operating hours of the lamp (used to check the total time)**
   Change the STATUS3 data settings: PICTURE at 0, BRIGHT at MAX, COLOR at MIN, TINT at MIN, and SHARPNESS at MAX. Hold down the SOUND DOWN and ENTER keys for longer than 3 seconds. By doing this, the total operating hours will be displayed on the screen.

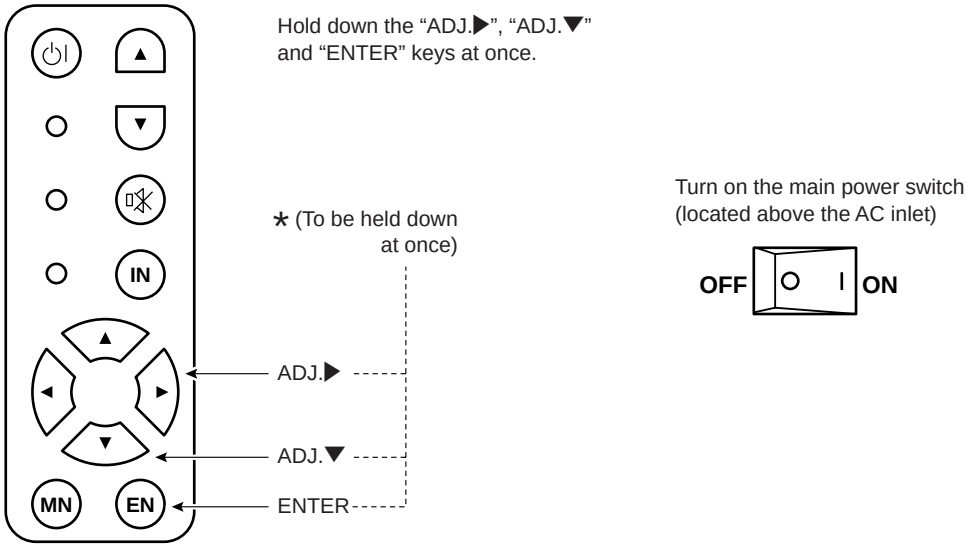


RESETTING THE LAMP OPERATING HOUR COUNTER

The unit is designed to keep its power off when the lamp has been used for 1900 and 2000 hours. This is to protect the lamp fixture. Replace the lamp with new one and take the following resetting procedure.

Resetting the lamp operating hour counter

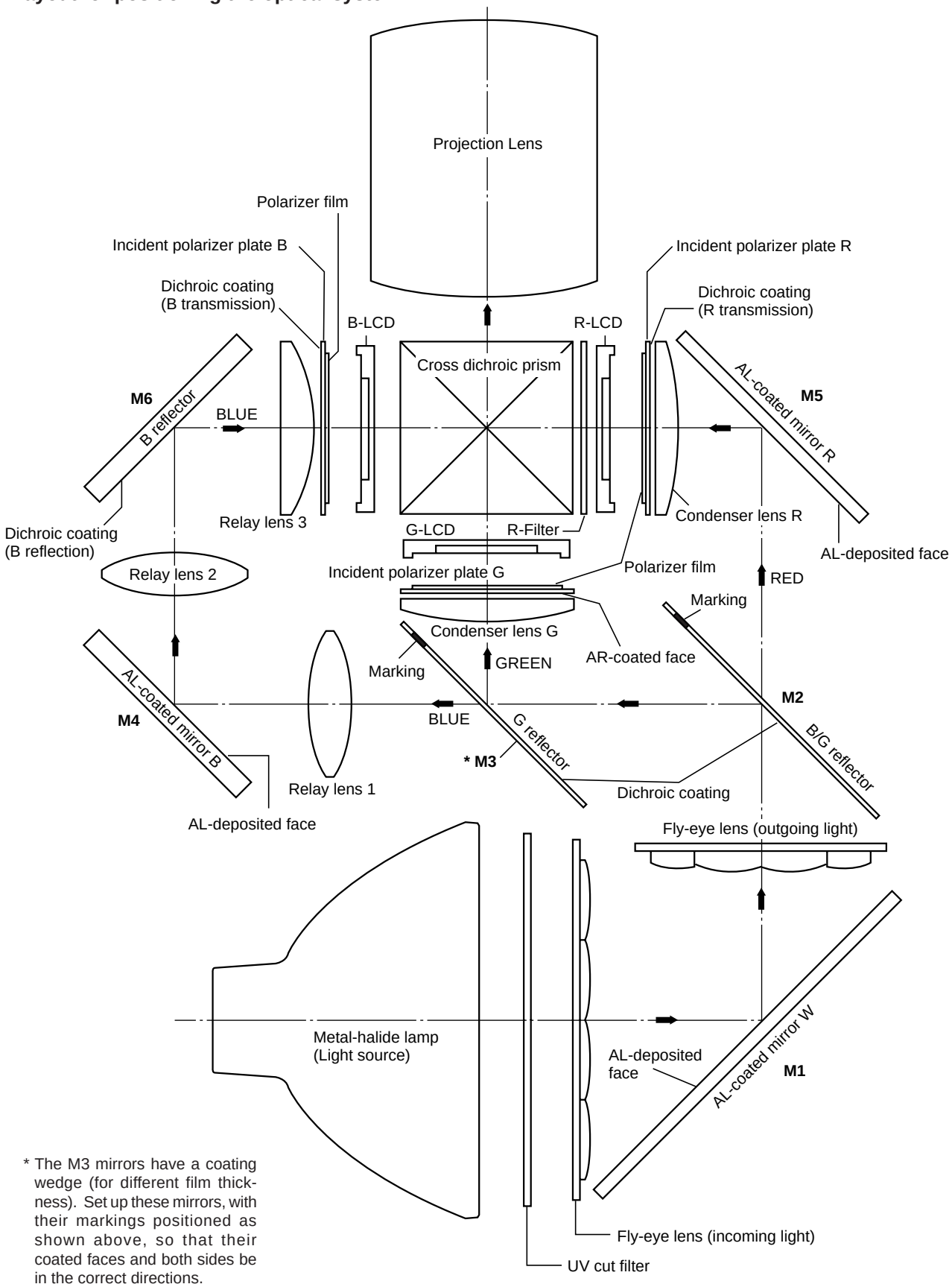
1. Hold down the “ENTER”, “ADJ.▼” and “ADJ.▶” buttons on the unit, and turn on the main power switch (located above the AC inlet).
2. Now the unit is turned on and the lamp operating hour counter is reset to zero. “000H” appears on the screen.



THE OPTICAL UNIT OUTLINE

Layout of the optical system

Note: Layout for positioning the optical system.



* The M3 mirrors have a coating wedge (for different film thickness). Set up these mirrors, with their markings positioned as shown above, so that their coated faces and both sides be in the correct directions.

CONVERGENCE AND FOCUS ADJUSTMENT

- **Start the convergence and focus adjustments with the top cabinet and the signal shield removed but the power on. Use the remote control gun to adjust the image. Take the following procedures.**

1. Focusing the projection lens

(A) Replacing all the 3 LCD panels

1. Before replacing all the 3 LCD panels, project an image on the screen and bring it into focus.
2. Replace the panels with new ones. But until the focus has been completely readjusted, be careful not to change the distance between the set and the screen, nor to move the projection lens focus and zoom rings.

(If the focus is readjusted with a different positional relation, the relation between the projection distance and the screen size is affected. In other words, a short-distance image (40 WIDE, for example) may get out of the focus range, or a long-distance image (300 WIDE, for example) may come out of focus.)

(B) Replacing 1 or 2 of the 3 LCD panels

1. In adjusting the focus after replacement of one or two LCD panels, project an image on the screen and turn the projection lens focus ring to get the non-replaced LCD panel into focus.
2. But until the focus has been completely adjusted for the new LCD panels, be careful not to change the distance between the set and the screen, nor to move the projection lens focus and zoom rings.
   (If the distance has been changed or the projection lens readjusted, repeat the above steps 1 and 2.)

2. Adjusting the G-LCD panel

(A) Focus adjustment. (Make this adjustment on the white-only screen.)

1. Right-and-left focus adjustment (θY direction) .
   Loosen the lock screws "b" and "c" and insert the eccentric screwdriver into the notch and hole "b". Turn the screwdriver until the right and left halves on the screen get into focus.
   (First get the right and left halves in balance. Then improve the accuracy while making the adjustment 2 below.)
2. Top-center-bottom focus adjustment (θX and Z directions).
   Loosen the lock screws "a" and "c" and insert the eccentric screwdriver into the notch and hole "a" or "c". Turn the screwdriver until the top, center and bottom on the screen get into focus. In adjusting this top-to-bottom focus, temporarily tighten the lock screw "b" to fix the θY direction adjustment.
3. Repeat the above steps 1 and 2 to finely adjust the focus. Finally tighten up all the lock screws.

Note :

① Carefully proceed with the focus adjustment because the adjusting directions are correlated.
② In adjusting the convergence and focus, do not move the projection lens zoom and focus rings until the end of all the adjustments.

(B) Convergence adjustment

- The G-LCD panel has no convergence adjustment mechanism. Use this panel as convergence adjustment reference.

3. B-LCD panel adjustment (the same for the R-LCD panel)

(A) Focus adjustment

- Take the same procedure as for the G-LCD panel focus adjustment. Note that the adjustment range is small in the Z direction. If the convergence is quite different between the B-LCD and G-LCD panels, roughly adjust the convergence first and then the focus.

(B) Convergence adjustment

- Use a crosshatch pattern signal for this adjustment.
  Make the adjustment just for the G-colour and the relevant colour.
  (1) Loosen the convergence lock screw "d".
  (2) With the G-LCD panel's screen center as reference, adjust the B-LCD panel in the X, Y and θZ directions.
  (3) Finally tighten up the convergence lock screw "d".

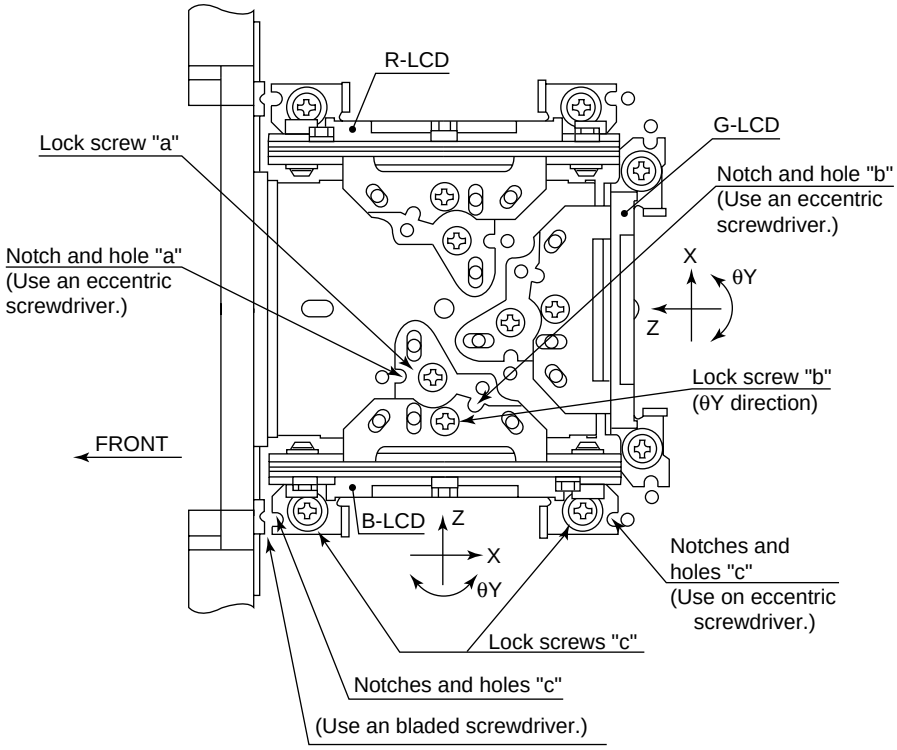
Note :

① The eccentric cam is used for convergence adjustment. This means that the cam's turning and the linear movement are not always uniform.

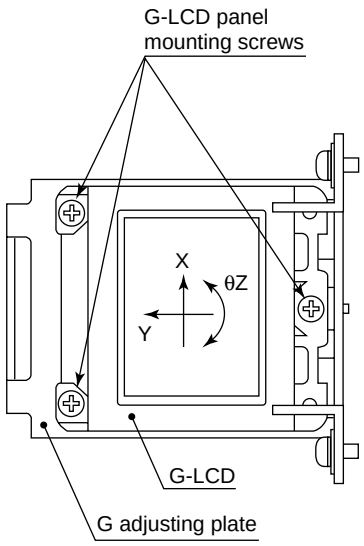
② This model is not equipped with the LCD image adjustment mechanism. This is because the dichroic prism is used for image formation. When the LCD panels all get into the best focus, the images are almost completely converged.

Convergence and Focus Adjustments Mechanism

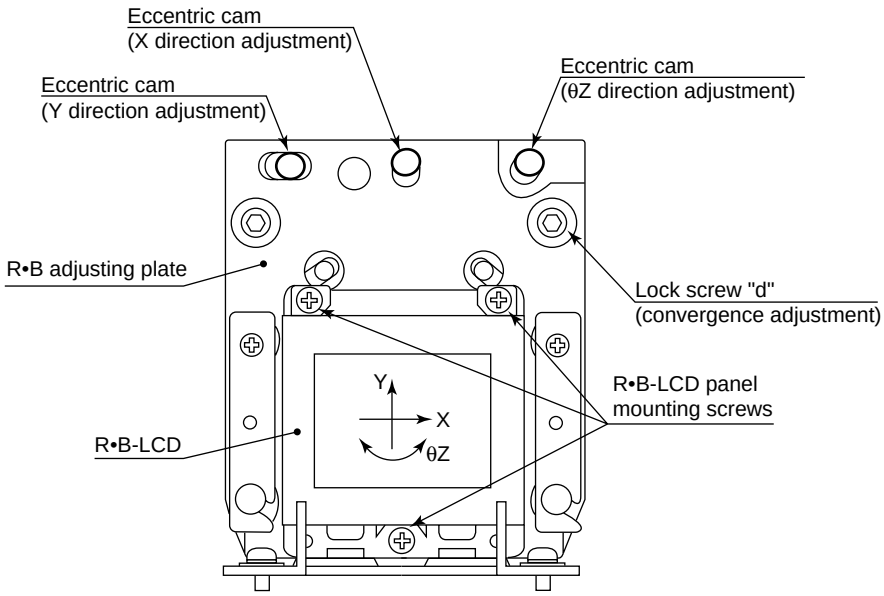
TOP VIEW



SIDE VIEW



SIDE VIEW



Convergence and Focus Adjustments at a Glance

Adjustment directions

Adjustment	Direction	Definition	Direction of LCD panel
Convergence	X direction		LCD right and left
	Y direction		LCD top and bottom
	θZ direction	Rotation around Z axis	LCD turning axis
Focus	Z direction		LCD optical axis
	θX direction	Rotation around X axis	LCD top-to-bottom flapping
	θY direction	Rotation around Y axis	LCD right-to-left flapping

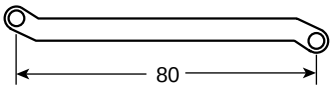
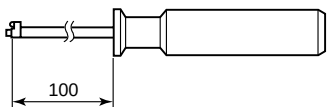
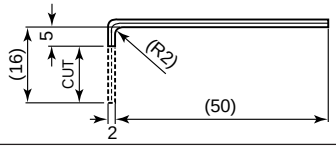
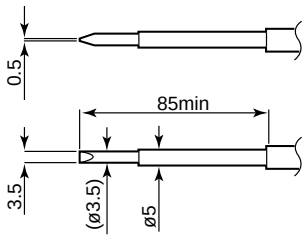
Convergence and Focus Adjustment for the XV-Z1 Optical Mechanism

Colour	Adjustment	Direction	Movement	Position	Adjusting tool	Lock screw	Tightening tool
R/B colours	Convergence	X direction	±0.8mm	Eccentric cam	Eccentric cam adjusting wrench	d	Hex wrench
		Y direction	±0.8mm	Eccentric cam	Eccentric cam adjusting wrench	d	Hex wrench
		θZ direction	±1°	Eccentric cam	Eccentric cam adjusting wrench	d	Hex wrench
	Focus	Z direction	±0.8mm	Notch and hole "a" & "c"	Eccentric screwdriver, Bladed screwdriver	a, c	Phillips screwdriver
		θX direction	±1°	Notch and hole "a" & "c"		a, c	
		θY direction	±1°	Notch and hole "b" & "c"		b, c	
G colour	Focus	Z direction	±0.2mm	Same as for R and B colours			
		θX direction	±1°				
		θY direction	±1°				

Focus Adjustments the Other Way

Lock screw	Position	Related direction
a	Notch and hole "a"	Z and θX directions
b	Notch and hole "b"	θY direction
c	Notch and hole "c"	Z, θX and θY directions

Convergence and Focus Adjusting and Tightening Tools

Tool	Specific or General	Tool code	Configuration
Eccentric cam adjusting wrench	Specific	9DASPN-XGNV1U	
Eccentric screwdriver	Specific	9EQDRiVER-NV1A	
Hex wrench	General (redesigned)	9EQLNC-XGNV1U	
Bladed screwdriver	General	9EQDRiVER-NV1B	
Phillips screwdriver	General	—	For M2.6 pan-head machine screw

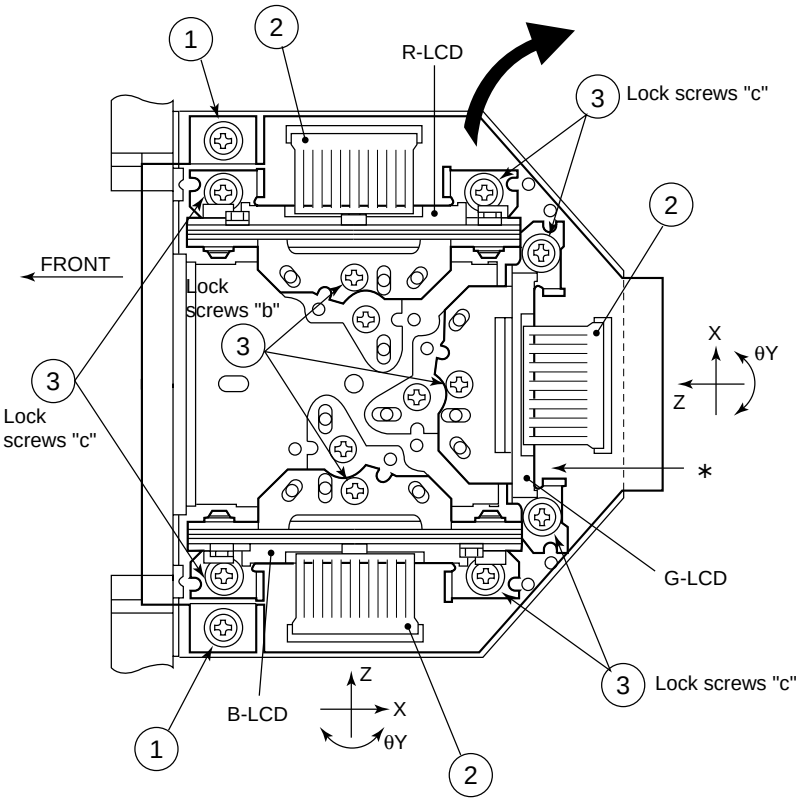
Replacing the LCDs

With the top cabinet removed

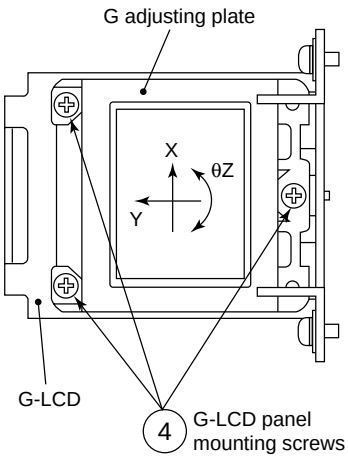
(1) Remove the output shield.
(2) Disconnect the LCD flat cable from the output PWB connector.
(3) Remove the lock screws "b" and "c". Detach the R/B adjusting plate or the G adjusting plate together with the LCD panel.
(4) Separate the LCD panel from the adjusting plate.
(5) Mount a new LCD panel in the reverse order of the above steps (1), (2), (3) and (4).

∗ Readjust the convergence and focus. Note that the G LCD panel needs no convergence adjustment and has a small adjustment range in the Z direction.

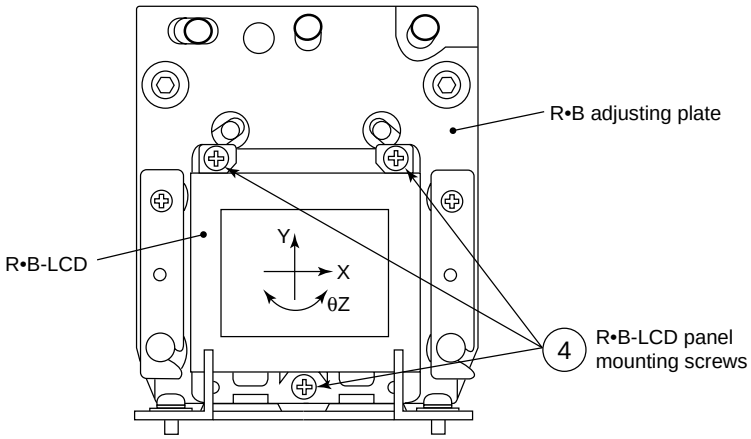
TOP VIEW



SIDE VIEW

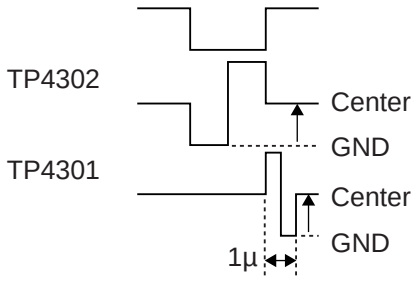


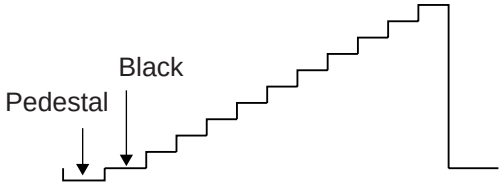
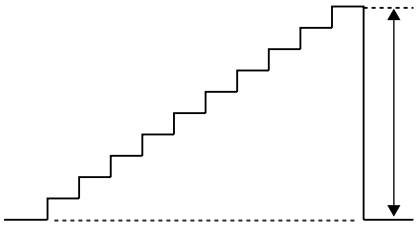
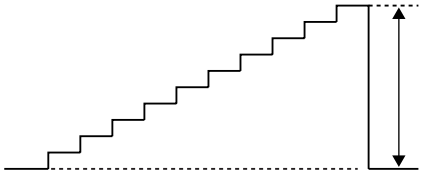
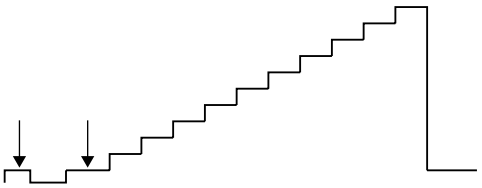
SIDE VIEW

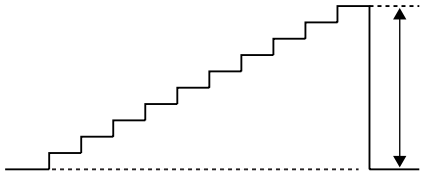
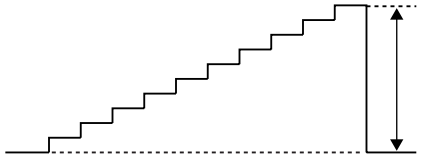
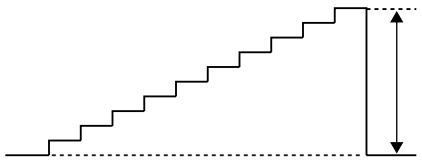
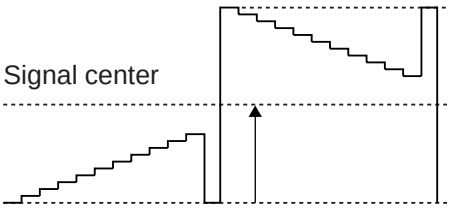


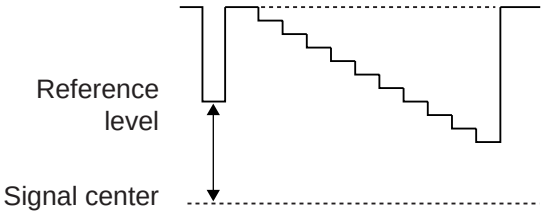
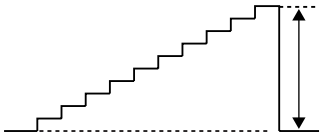
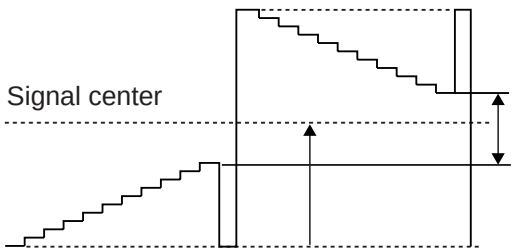
ELECTRICAL ADJUSTMENT

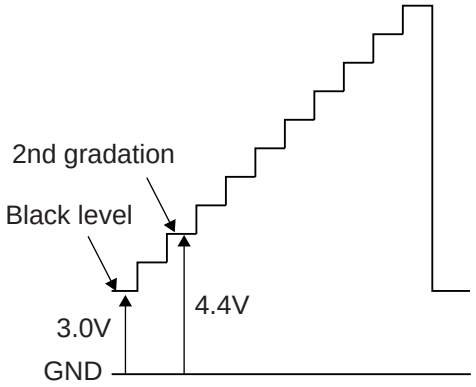
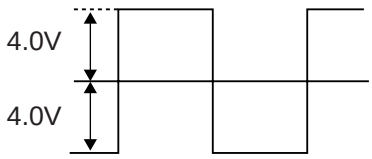
NOTE : The settings have been factory-adjusted to their best points. If any of them gets out of spec or after any relevant part has been replaced, make the related adjustment.

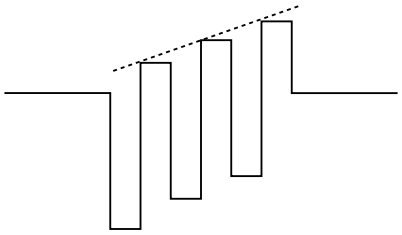
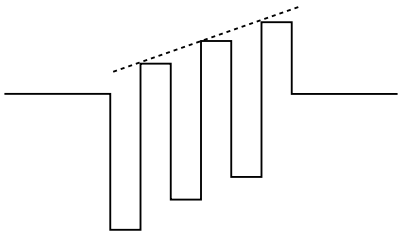
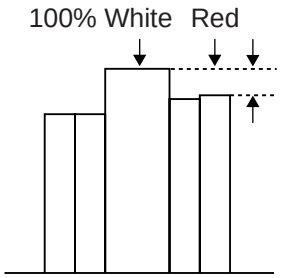
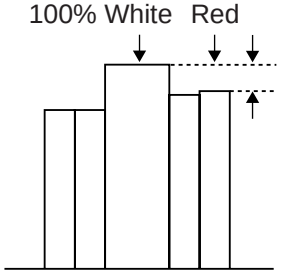
Step	Adjustment Position	Adjustment Conditions	Adjustment Method
1	**PLL (NTSC) (R4314, R4318)**	1. Receive the monoscope pattern signal of NTSC. 2. Connect the oscilloscope to TP4301 and TP4302.	● Adjust center level and pulse width of R4314/R3418. 
2	**PLL (PAL) (R4313, R4320)**	1. Receive the monoscope pattern signal of PAL. 2. Connect the oscilloscope to TP4301 and TP4302.	● Adjust center level and pulse width of R4313/R4320, same as NTSC.
3	**VCO primary OSC (L1001)**	1. No signal. 2. Short the TP1001 and GND. 3. Connect the frequency counter to TP1002 and GND.	● Adjust frequency of the core of L1001 fo : 15.625 ±0.01kHz
4	**H-center (NTSC)(DAC)**	1. Receive the monoscope pattern signal of NTSC. 2. Push S2001 and set the follow DAC mode. Group : VIDEO 1 Subject : H-CENT+9 setting. Group : TEST Subject : H-POS	● Using the Operation key switch ▲ ▼, adjust same as right and left overscan. Overscan : 93~95%
5	**H-center (PAL)(DAC)**	1. Receive the monoscope pattern signal of PAL. 2. Push S2001 and set the follow DAC mode. Group : VIDEO 1 Subject : PAL-H-CENT +9 setting. Group : TEST Subjec : H-POS	● Using the Operation key switch ▲ ▼, adjust same as right and left overscan. Overscan : 93~95%

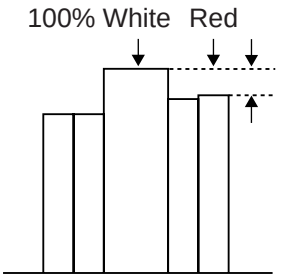
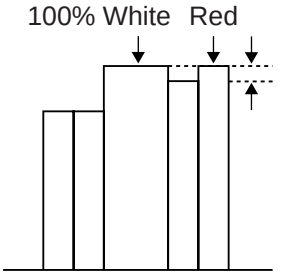
Step	Adjustment Position	Adjustment Conditions	Adjustment Method
6	**Reference black Level**	1. Receive the 10 step gray scale signal. (NTSC or PAL) 2. Connect the oscilloscope to pin (3) of P1501. 3. Group : VIDEO 5 Subject : T-BRT	● Using the Operation key switch ▲ ▼, adjust the black level as same as pedestal level. 
7	**Contrast (DAC)**	1. Receive the 10 step gray scale signal of NTSC. 2. Connect the oscilloscope to pin (3) of P1501. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 1 Subject : SUB-R 0 SUB-G 0 SUB-B 0 setting. 4. Group : VIDEO 1 Subject : CONT	● Using the Operation key switch ▲ ▼, adjust level between black level and 100% white level. 1.60 ±0.05Vp-p 
8	**Contrast of component mode (DAC)**	1. Receive the 10 step gray scale signal of NTSC. 2. Connect the oscilloscope to pin (3) of P1501. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 5 Subject : C-CONT	● Using the Operation key switch ▲ ▼, adjust level between black level and 100% white level. 1.55 ±0.05Vp-p 
9	**Bright of component mode (DAC)**	1. Receive the 10 step gray scale signal of NTSC. 2. Connect the oscilloscope to pin (3) of P1501. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 5 Subject : C-BRIGHT	● Using the Operation key swsitch ▲ ▼, adjust the black level as same as clamp level. 

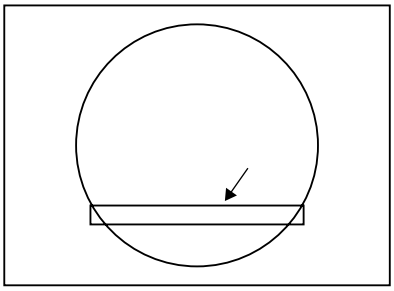
Step	Adjustment Position	Adjustment Conditions	Adjustment Method
10	**AGC**	1. Receive the 10 step gray scale signal of NTSC. 2. Connect the oscillosope to pin (3) of P1501. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 5 Subject : AGCADJ	● Using the Operation key switch ▲ ▼, adjust level between black and 100% white level. 1.2 ±0.05Vp-p 
11	**D/A Output level (NTSC) (DAC)**	1. Receive the 10 step gray scale signal of NTSC. 2. Connect the oscilloscope to pin (5) of P1501. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 5 Subject : DAV	● Using the Operation key switch ▲ ▼, adjust level between black and 100% white level. 0.6 ±0.05Vp-p 
12	**D/A Output level (PAL) (DAC)**	1. Receive the 10 step gray scale signal of PAL. 2. Connect the oscilloscope to pin (5) of P1501. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 1 Subject : DAVREF	● Using the Operation key switch ▲ ▼, adjust level between black and 100% white level. 0.6 ±0.05Vp-p 
13	**Signal center (DAC)**	1. Receive the 10 step gray scale signal of NTSC. 2. Connect the oscilloscope to pin (2) of P4303. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 2 Subject : SIG CTR	● Using the Operation key switch ▲ ▼, adjust level between signal center and GND. DC 7.0 ±0.1Vp-p 

Step	Adjustment Position	Adjustment Conditions	Adjustment Method
14	**Reference level (DAC)**	1. Receive the 10 step gray scale signal of NTSC. 2. Connect the oscilloscope to pin (2) of P4303. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 2 Subject : SUB-BIAS 4. Connect the oscilloscope to pin (1) of P4303. Subject : R-BIAS 5. Connect the oscilloscope to pin (3) of P4303. Subject : B-BIAS	● Using the Operation key switch ▲ ▼, adjust level between signal center and reference level. DC 2.0 ±0.1Vp-p (SUB-BIAS, R-BIAS, B-BIAS) 
15	**Gain (DAC)**	1. Receive the 10 step gray scale signal of NTSC. 2. Connect the oscilloscope to pin (2) of P4303. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 2 Subject : DRIVE 1 4. Cinnect the oscilloscope to pin (1) of P4303. Subject : R-DRIVE 5. Connect the oscilloscope to pin (3) of P4303. Subject : B-DRIVE	● Using the Operation key switch ▲ ▼, adjust level between black and 100% white level. 1.4 ±0.05Vp-p (DRIVE1, R-DRIVE, B-DRIVE) 
16	**BRIGHT (DAC)**	1. Receive the 10 step gray scale signal of NTSC. 2. Connect the oscilloscope to (2-BRIGHT)(1-R-BRT)(3-B-BRT) of P4303. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 1 Subject : BRIGHT(G) : R-BRT : B-BRT	● Using the Operation key switch ▲ ▼, adjust level between signal center and 100% white level. 2.55 ±0.1Vp-p 

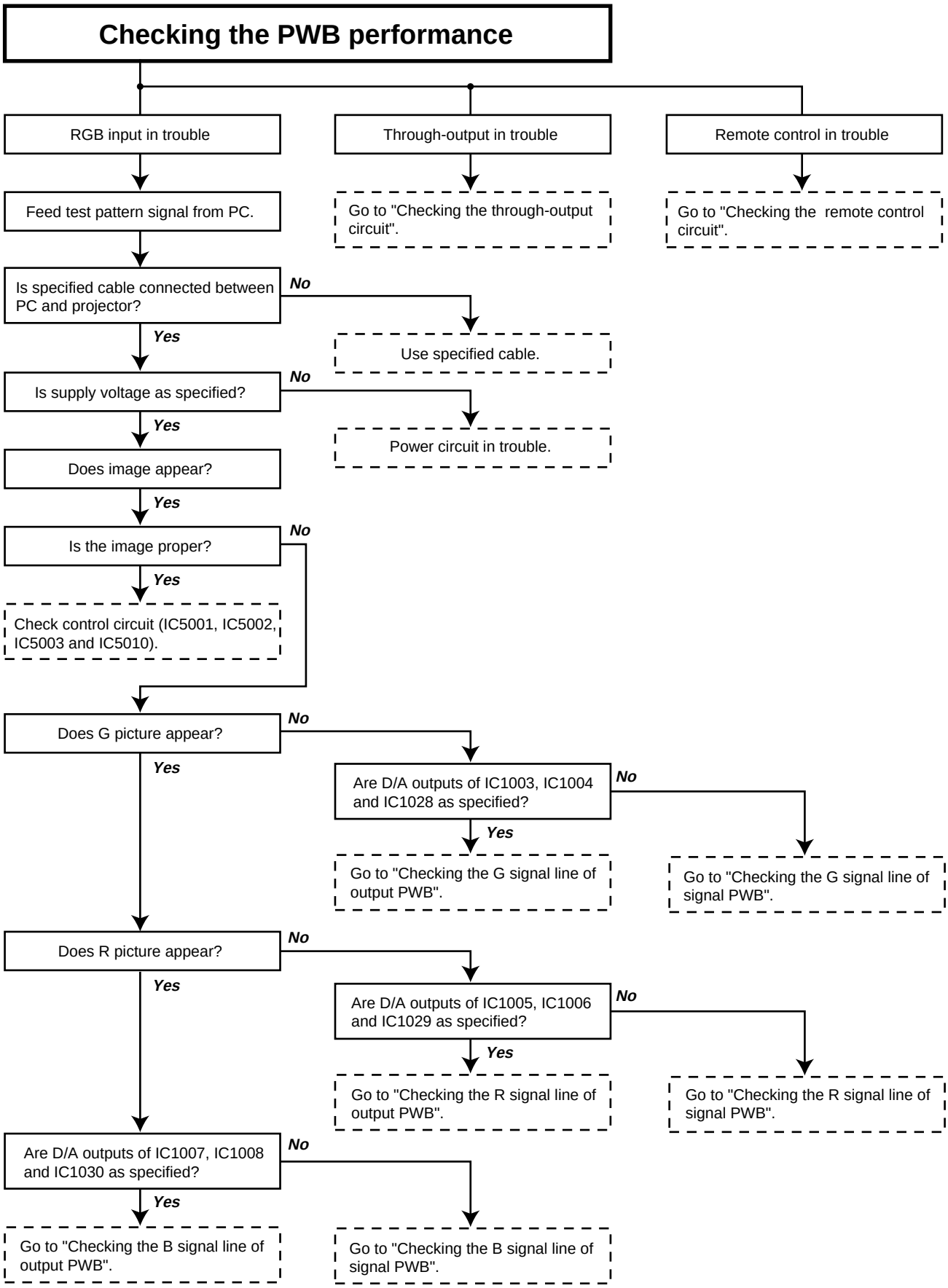
Step	Adjustment Position	Adjustment Conditions	Adjustment Method
17	**Gamma (DAC)**	1. Receive the 10 step gray scale signal of NTSC. 2. Connect the oscilloscope to pin (2) of P4303. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 4 Subject : RGB GAM 1 RGB CTR 1 4. Connect the oscilloscope to pin (1) of P4303. Group : VIDEO 4 Subject : R GAM 1 R CTR 1 5. Connect the oscilloscope to pin (3) of P4303. Group : VIDEO 4 Subject : B GAM 1 B CTR 1	● Using the Operation key switch ▲ ▼, adjust level between 2nd gradation and GND for 4.4 ±0.1Vp-p adjust level between black level and GND for 3.0 ±0.1Vp-p 
18	**SID signal level**	1. Receive the 10 step gray scale signal of NTSC. 2. Connect the oscilloscope to pin (6) of P4303. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 3 Subject : SID CTR	● Using the Operation key switch ▲ ▼, adjust level between signal center and SID signal level. 4.0 ±0.1Vp-p 

Step	Adjustment Position	Adjustment Conditions	Adjustment Method
19	**TINT (DAC)**	1. Receive the colour bar signal. 2. Connect the oscilloscope to pin (2) of P1501. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 2 Subject : TINT	● Using the Operation key switch ▲ ▼, adjust the freshtone B-Y waveform. 
20	**TINT of component (DAC)**	1. Receive the colour bar sugnal for component terminal. 2. Connect the oscilloscope to pin (2) of P1501. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 5 Subject : C-TINT	● Using the Operation key switch ▲ ▼, adjust the freshtone for B-Y waveform. 
21	**Colour of NTSC (DAC)**	1. Receive the colour bar signal of NTSC. 2. Connect the oscilloscope to pin (1) of P4303. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 2 Subject : COLOR	● Using the Operation key switch ▲ ▼, adjust level between Red and 100% white level. 0.15 ±0.05Vp-p 
22	**PAL COLOUR (DAC)**	1. Receive the colour bar signal of PAL. 2. Connect the oscilloscope to pin (1) of P4303. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 2 Subject : P-COLOR	● Using the Operation key switch ▲ ▼, adjust level between Red and 100% white level. 0.35 ±0.05Vp-p 

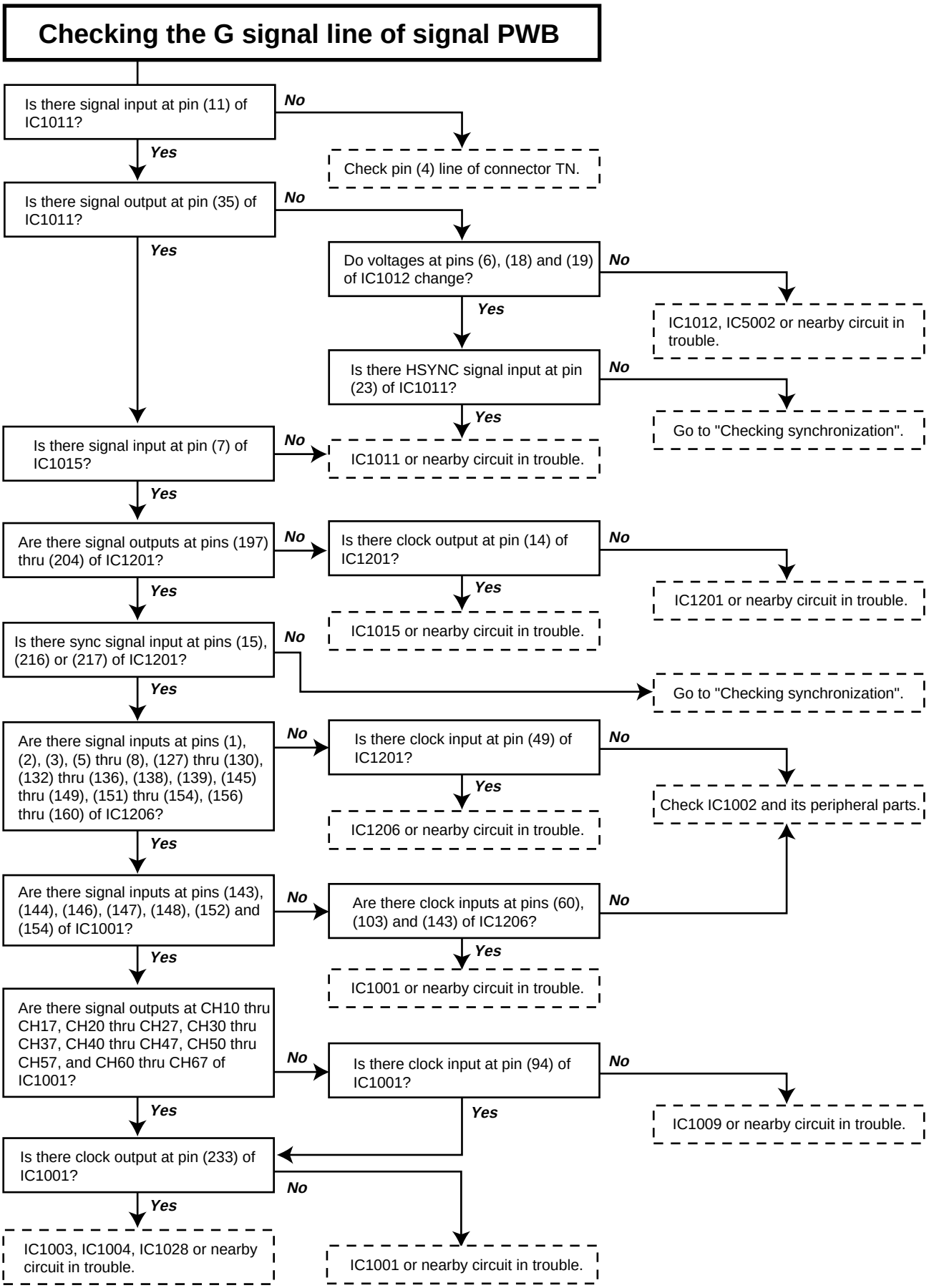
Step	Adjustment Position	Adjustment Conditions	Adjustment Method
23	**SECAM COLOUR (DAC)**	1. Receive the colour bar signal of SECAM. 2. Connect the oscilloscope to pin (1) of P4303. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 2 Subject : S-COLOR	● Using the Operation key switch ▲ ▼, adjust level between red and 100% white level. 0.2 ±0.05Vp-p 
24	**COLOUR of component (DAC)**	1. Receive the colour bar signal of NTSC. 2. Connect the oscilloscope to pin (1) of P4303. 3. Push S2001 and set the follow DAC mode. Group : VIDEO 5 Subject : C-COLOR	● Using the Operation key switc ▲ ▼, adjust level between red and 100% white level. 0 ±0.05Vp-p 
25	**Common DC bias (DAC) (VCOMCTR) (RC) (GC) (BC)**	1. Receive the monoscope signal of NTSC or PAL. 2. Push S2001 and set the follow DAC mode. Group : VIDEO 3 Subject : VCOMCTR 43 set before adjustment. 3. Subject : RC : GC : BC	● Using the Operation key switch ▲ ▼, adjust visually to the sharpest contrast.
26	**White balance (DAC)**	1. Receive the monoscope signal of NTSC or PAL. 2. Push S2001 and set the follow DAC mode. Froup : VIDEO 2 Subject : R-BIAS B-BIAS	● Using the Operation key switch ▲ ▼, adjust visually to the white.

Step	Adjustment Position	Adjustment Conditions	Adjustment Method
27	**Sign display position (L2003)**	1. Receive the monoscope signal of NTSC or PAL. 2. Push the volume key ▲ ▼	● Adjust L2003 so the volume sign on screen display is symmetrical to the right and left side. 
28	**Vertical position (NTSC)**	1. Receive the monoscope signal of NTSC. 2. Push S2001 and set the follow DAC mode. Group : TEST Subject : V-POS	● Using the Operation key switch ▲ ▼, display is symmetrical to the upper and lower side. Overscan : 93~95%
29	**Vertical position (PAL)**	1. Receive the monoscope signal of PAL. 2. Push S2001 and set the follow DAC mode. Group : TEST Subject : V-POS	● Using the Operation key switch ▲ ▼, adjust the 21 points of V-POS.
30	**Samplehold**	1. Receive the colour bar signal of NTSC. 2. Push S2001 and set the follow DAC mode. Group : TEST Subject : SH-POS	● Using the Operation key switch ▲ ▼, adjust the 8 points of SH-POS.
31	**Sensor of thermostat**	1. Push S2001 and set the follow DAC mode. Group : TEST Subject : HL	● Using the Operation key switch ▲ ▼, adjust the 3 points of SH-POS.

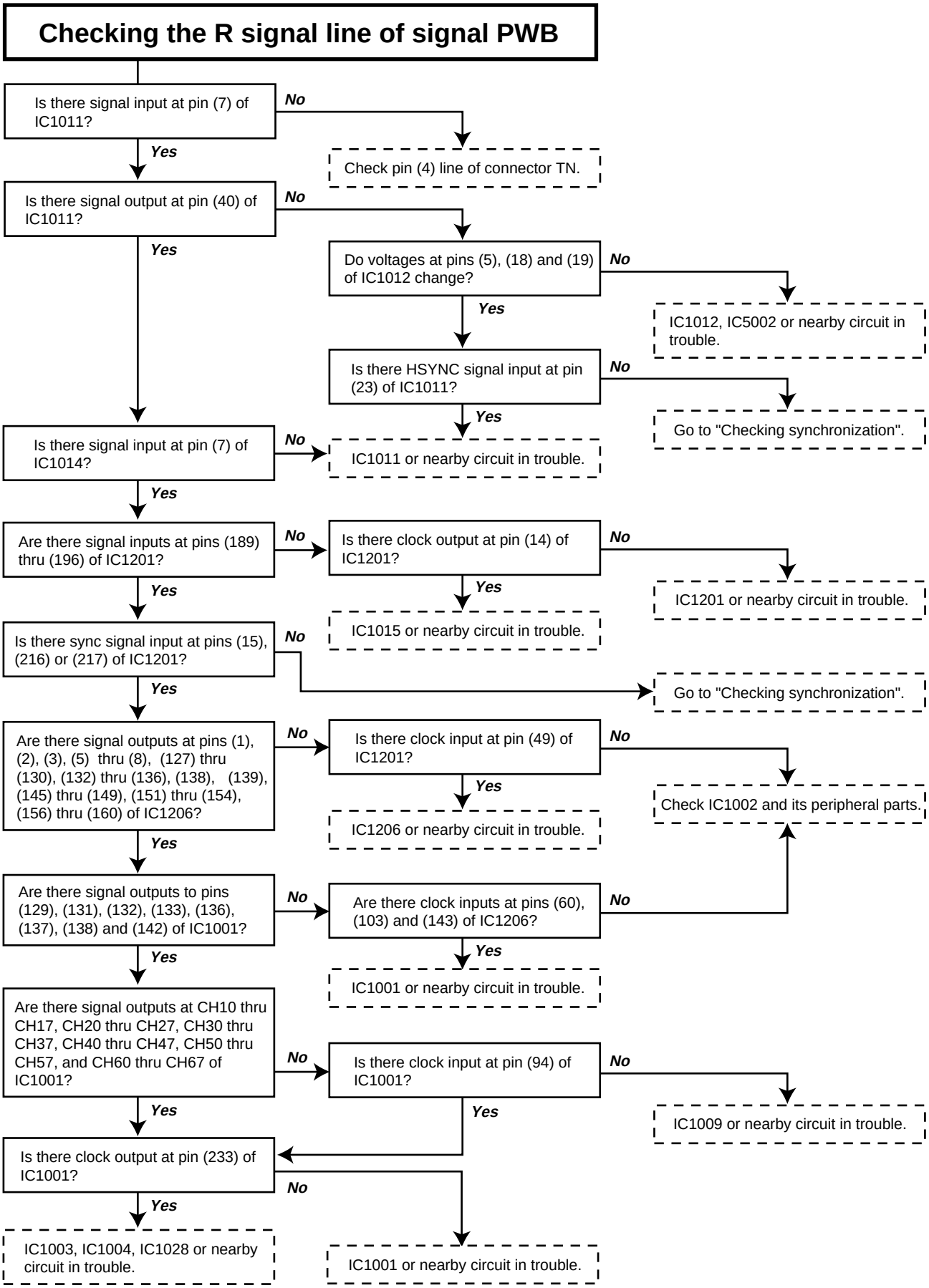
TROUBLE SHOOTING TABLE


Checking the PWB performance
RGB input in trouble
Through-output in trouble
Remote control in trouble
Feed test pattern signal from PC.
Go to "Checking the through-output circuit".
Go to "Checking the remote control circuit".
Is specified cable connected between PC and projector?
No
Yes
Use specified cable.
Is supply voltage as specified?
No
Yes
Power circuit in trouble.
Does image appear?
Yes
Is the image proper?
No
Yes
Check control circuit (IC5001, IC5002, IC5003 and IC5010).
Does G picture appear?
No
Yes
Are D/A outputs of IC1003, IC1004 and IC1028 as specified?
No
Yes
Go to "Checking the G signal line of output PWB".
Go to "Checking the G signal line of signal PWB".
Does R picture appear?
No
Yes
Are D/A outputs of IC1005, IC1006 and IC1029 as specified?
No
Yes
Go to "Checking the R signal line of output PWB".
Go to "Checking the R signal line of signal PWB".
Are D/A outputs of IC1007, IC1008 and IC1030 as specified?
No
Yes
Go to "Checking the B signal line of output PWB".
Go to "Checking the B signal line of signal PWB".

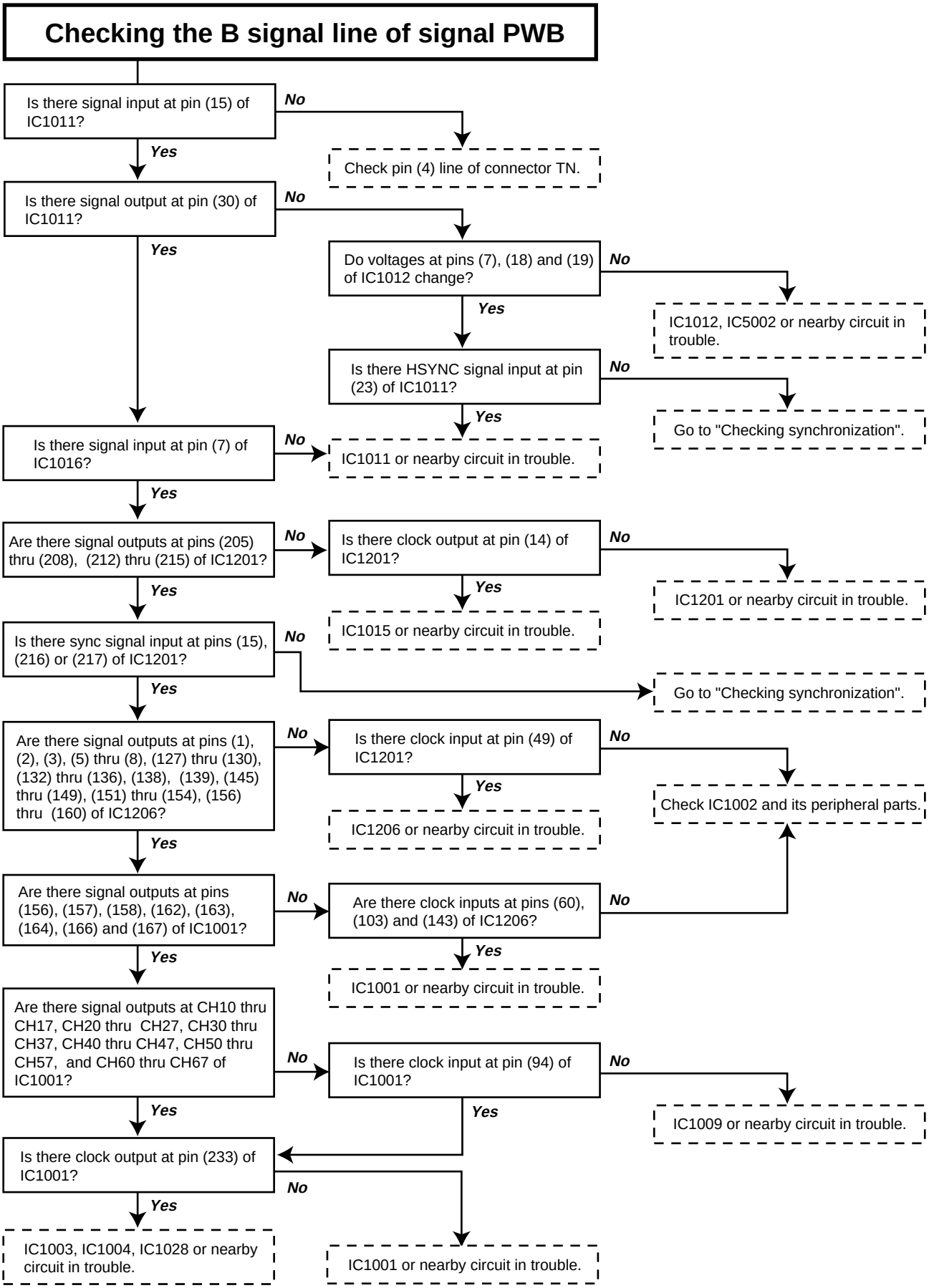
TROUBLE SHOOTING TABLE (Continued)


Checking the G signal line of signal PWB
Is there signal input at pin (11) of IC1011?
No
Check pin (4) line of connector TN.
Yes
Is there signal output at pin (35) of IC1011?
No
Yes
Do voltages at pins (6), (18) and (19) of IC1012 change?
No
IC1012, IC5002 or nearby circuit in trouble.
Yes
Is there HSYNC signal input at pin (23) of IC1011?
No
Go to "Checking synchronization".
Yes
Is there signal input at pin (7) of IC1015?
No
IC1011 or nearby circuit in trouble.
Yes
Are there signal outputs at pins (197) thru (204) of IC1201?
No
Is there clock output at pin (14) of IC1201?
No
IC1201 or nearby circuit in trouble.
Yes
IC1015 or nearby circuit in trouble.
Is there sync signal input at pins (15), (216) or (217) of IC1201?
No
Go to "Checking synchronization".
Yes
Are there signal inputs at pins (1), (2), (3), (5) thru (8), (127) thru (130), (132) thru (136), (138), (139), (145) thru (149), (151) thru (154), (156) thru (160) of IC1206?
No
Is there clock input at pin (49) of IC1201?
No
Check IC1002 and its peripheral parts.
Yes
IC1206 or nearby circuit in trouble.
Yes
Are there signal inputs at pins (143), (144), (146), (147), (148), (152) and (154) of IC1001?
No
Are there clock inputs at pins (60), (103) and (143) of IC1206?
No
Yes
IC1001 or nearby circuit in trouble.
Are there signal outputs at CH10 thru CH17, CH20 thru CH27, CH30 thru CH37, CH40 thru CH47, CH50 thru CH57, and CH60 thru CH67 of IC1001?
No
Is there clock input at pin (94) of IC1001?
No
IC1009 or nearby circuit in trouble.
Yes
Yes
Is there clock output at pin (233) of IC1001?
No
Yes
IC1003, IC1004, IC1028 or nearby circuit in trouble.
IC1001 or nearby circuit in trouble.

TROUBLE SHOOTING TABLE (Continued)

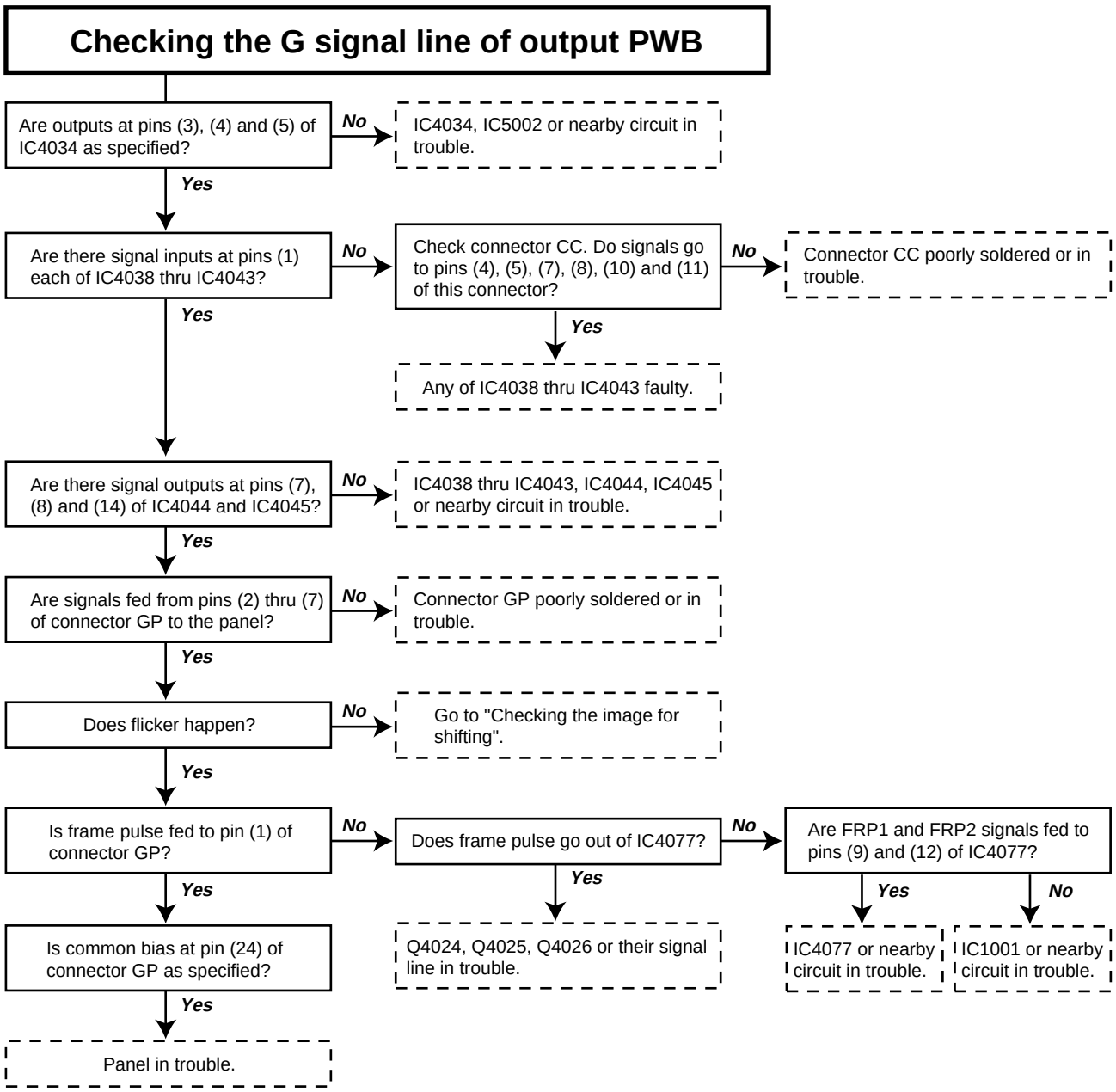

Checking the R signal line of signal PWB
Is there signal input at pin (7) of IC1011?
No
Check pin (4) line of connector TN.
Yes
Is there signal output at pin (40) of IC1011?
No
Do voltages at pins (5), (18) and (19) of IC1012 change?
No
IC1012, IC5002 or nearby circuit in trouble.
Yes
Is there HSYNC signal input at pin (23) of IC1011?
No
Go to "Checking synchronization".
Yes
IC1011 or nearby circuit in trouble.
Yes
Is there signal input at pin (7) of IC1014?
No
Yes
Are there signal inputs at pins (189) thru (196) of IC1201?
No
Is there clock output at pin (14) of IC1201?
No
IC1201 or nearby circuit in trouble.
Yes
IC1015 or nearby circuit in trouble.
Yes
Is there sync signal input at pins (15), (216) or (217) of IC1201?
No
Go to "Checking synchronization".
Yes
Are there signal outputs at pins (1), (2), (3), (5) thru (8), (127) thru (130), (132) thru (136), (138), (139), (145) thru (149), (151) thru (154), (156) thru (160) of IC1206?
No
Is there clock input at pin (49) of IC1201?
No
Check IC1002 and its peripheral parts.
Yes
IC1206 or nearby circuit in trouble.
Yes
Are there signal outputs to pins (129), (131), (132), (133), (136), (137), (138) and (142) of IC1001?
No
Are there clock inputs at pins (60), (103) and (143) of IC1206?
No
Yes
IC1001 or nearby circuit in trouble.
Yes
Are there signal outputs at CH10 thru CH17, CH20 thru CH27, CH30 thru CH37, CH40 thru CH47, CH50 thru CH57, and CH60 thru CH67 of IC1001?
No
Is there clock input at pin (94) of IC1001?
No
IC1009 or nearby circuit in trouble.
Yes
Yes
Is there clock output at pin (233) of IC1001?
No
Yes
IC1003, IC1004, IC1028 or nearby circuit in trouble.
IC1001 or nearby circuit in trouble.

TROUBLE SHOOTING TABLE (Continued)

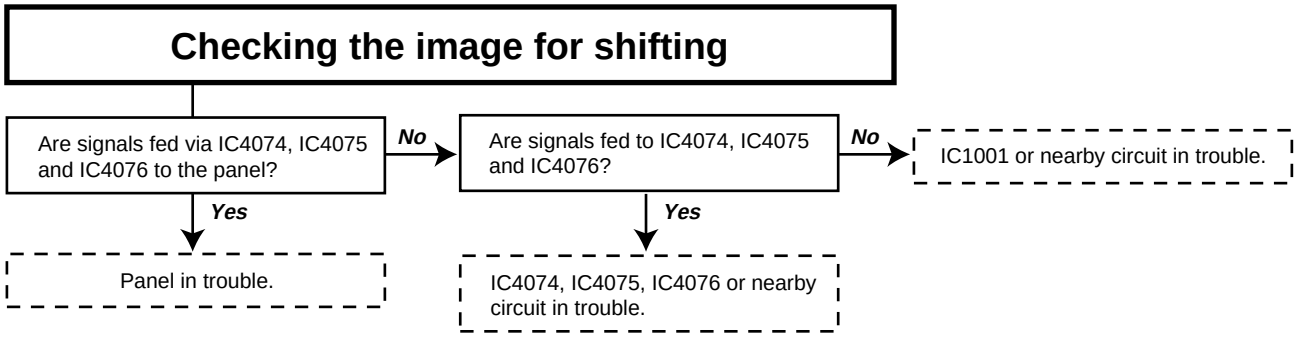

Checking the B signal line of signal PWB
Is there signal input at pin (15) of IC1011?
No
Check pin (4) line of connector TN.
Yes
Is there signal output at pin (30) of IC1011?
No
Yes
Do voltages at pins (7), (18) and (19) of IC1012 change?
No
IC1012, IC5002 or nearby circuit in trouble.
Yes
Is there HSYNC signal input at pin (23) of IC1011?
No
Go to "Checking synchronization".
Yes
Is there signal input at pin (7) of IC1016?
No
IC1011 or nearby circuit in trouble.
Yes
Are there signal outputs at pins (205) thru (208), (212) thru (215) of IC1201?
No
Is there clock output at pin (14) of IC1201?
No
IC1201 or nearby circuit in trouble.
Yes
IC1015 or nearby circuit in trouble.
Yes
Is there sync signal input at pins (15), (216) or (217) of IC1201?
No
Go to "Checking synchronization".
Yes
Are there signal outputs at pins (1), (2), (3), (5) thru (8), (127) thru (130), (132) thru (136), (138), (139), (145) thru (149), (151) thru (154), (156) thru (160) of IC1206?
No
Is there clock input at pin (49) of IC1201?
No
Check IC1002 and its peripheral parts.
Yes
IC1206 or nearby circuit in trouble.
Yes
Are there signal outputs at pins (156), (157), (158), (162), (163), (164), (166) and (167) of IC1001?
No
Are there clock inputs at pins (60), (103) and (143) of IC1206?
No
Yes
IC1001 or nearby circuit in trouble.
Yes
Are there signal outputs at CH10 thru CH17, CH20 thru CH27, CH30 thru CH37, CH40 thru CH47, CH50 thru CH57, and CH60 thru CH67 of IC1001?
No
Is there clock input at pin (94) of IC1001?
No
IC1009 or nearby circuit in trouble.
Yes
Yes
Is there clock output at pin (233) of IC1001?
No
Yes
IC1003, IC1004, IC1028 or nearby circuit in trouble.
IC1001 or nearby circuit in trouble.

TROUBLE SHOOTING TABLE (Continued)

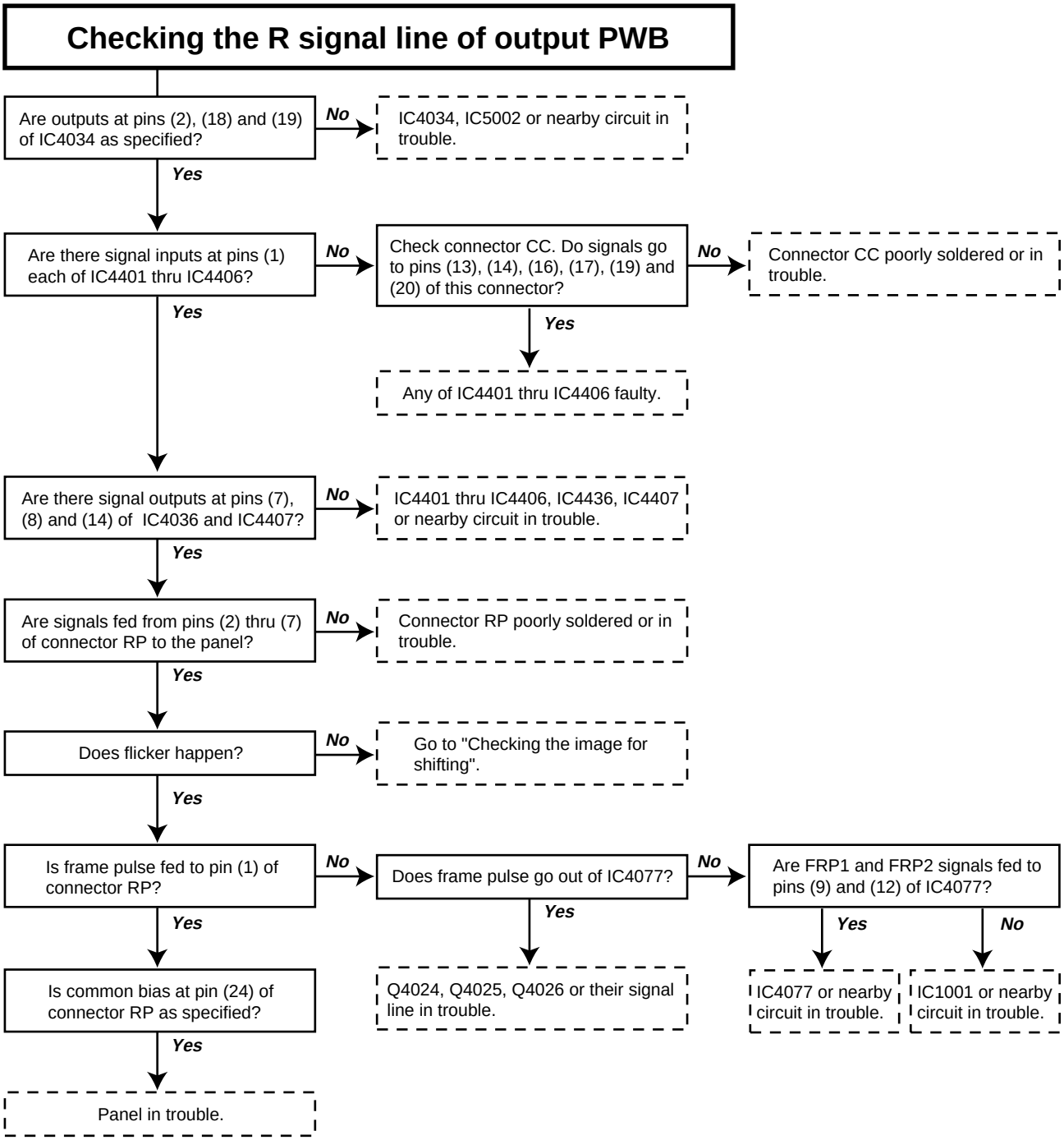
Checking the G signal line of output PWB


Are outputs at pins (3), (4) and (5) of IC4034 as specified?
No
IC4034, IC5002 or nearby circuit in trouble.
Yes
Are there signal inputs at pins (1) each of IC4038 thru IC4043?
No
Check connector CC. Do signals go to pins (4), (5), (7), (8), (10) and (11) of this connector?
No
Connector CC poorly soldered or in trouble.
Yes
Any of IC4038 thru IC4043 faulty.
Yes
Are there signal outputs at pins (7), (8) and (14) of IC4044 and IC4045?
No
IC4038 thru IC4043, IC4044, IC4045 or nearby circuit in trouble.
Yes
Are signals fed from pins (2) thru (7) of connector GP to the panel?
No
Connector GP poorly soldered or in trouble.
Yes
Does flicker happen?
No
Go to "Checking the image for shifting".
Yes
Is frame pulse fed to pin (1) of connector GP?
No
Does frame pulse go out of IC4077?
No
Are FRP1 and FRP2 signals fed to pins (9) and (12) of IC4077?
Yes
No
Yes
Q4024, Q4025, Q4026 or their signal line in trouble.
IC4077 or nearby circuit in trouble.
IC1001 or nearby circuit in trouble.
Yes
Is common bias at pin (24) of connector GP as specified?
Yes
Panel in trouble.

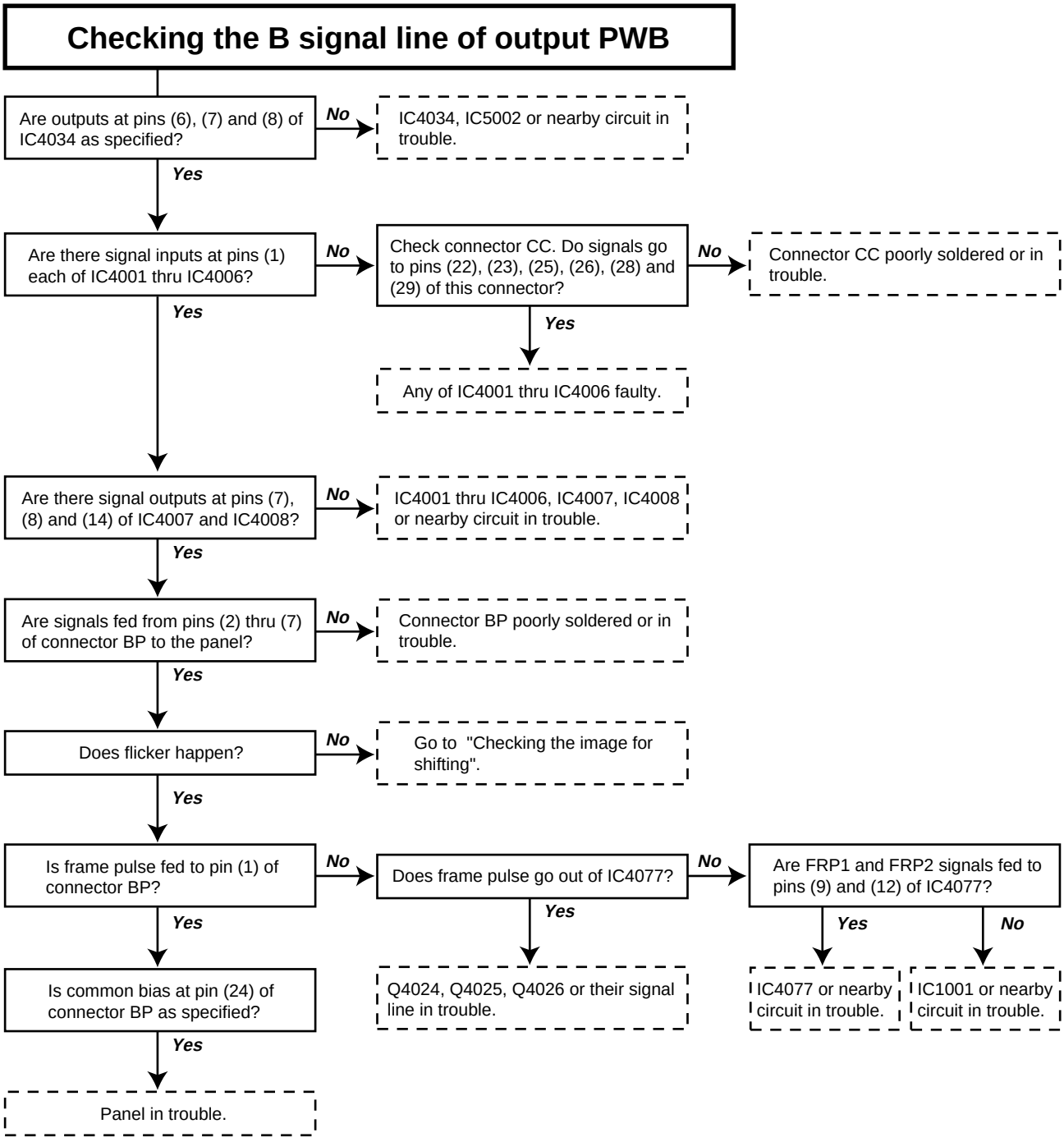
Checking the image for shifting


Are signals fed via IC4074, IC4075 and IC4076 to the panel?
No
Are signals fed to IC4074, IC4075 and IC4076?
No
IC1001 or nearby circuit in trouble.
Yes
Yes
Panel in trouble.
IC4074, IC4075, IC4076 or nearby circuit in trouble.

TROUBLE SHOOTING TABLE (Continued)

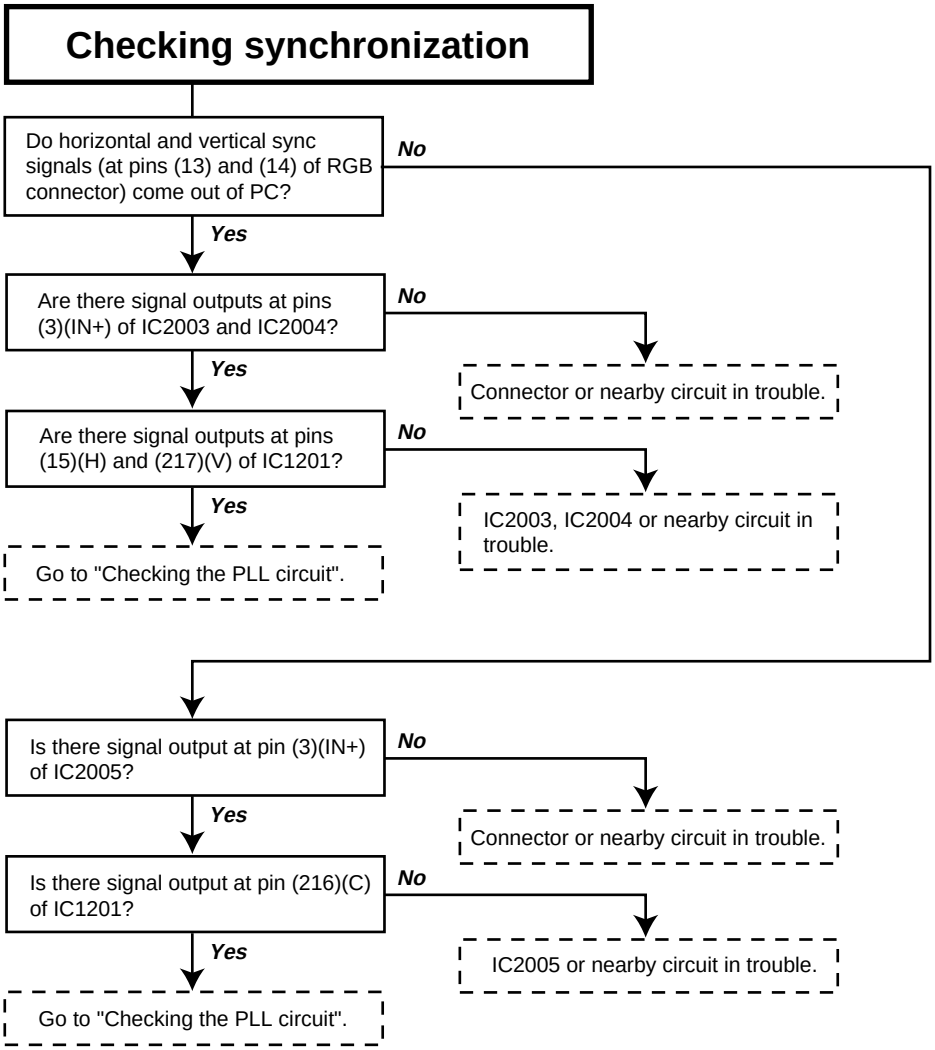

Checking the R signal line of output PWB
Are outputs at pins (2), (18) and (19) of IC4034 as specified?
No
IC4034, IC5002 or nearby circuit in trouble.
Yes
Are there signal inputs at pins (1) each of IC4401 thru IC4406?
No
Check connector CC. Do signals go to pins (13), (14), (16), (17), (19) and (20) of this connector?
No
Connector CC poorly soldered or in trouble.
Yes
Any of IC4401 thru IC4406 faulty.
Yes
Are there signal outputs at pins (7), (8) and (14) of IC4036 and IC4407?
No
IC4401 thru IC4406, IC4436, IC4407 or nearby circuit in trouble.
Yes
Are signals fed from pins (2) thru (7) of connector RP to the panel?
No
Connector RP poorly soldered or in trouble.
Yes
Does flicker happen?
No
Go to "Checking the image for shifting".
Yes
Is frame pulse fed to pin (1) of connector RP?
No
Does frame pulse go out of IC4077?
No
Are FRP1 and FRP2 signals fed to pins (9) and (12) of IC4077?
Yes
No
Yes
Yes
Q4024, Q4025, Q4026 or their signal line in trouble.
IC4077 or nearby circuit in trouble.
IC1001 or nearby circuit in trouble.
Is common bias at pin (24) of connector RP as specified?
Yes
Panel in trouble.

TROUBLE SHOOTING TABLE (Continued)

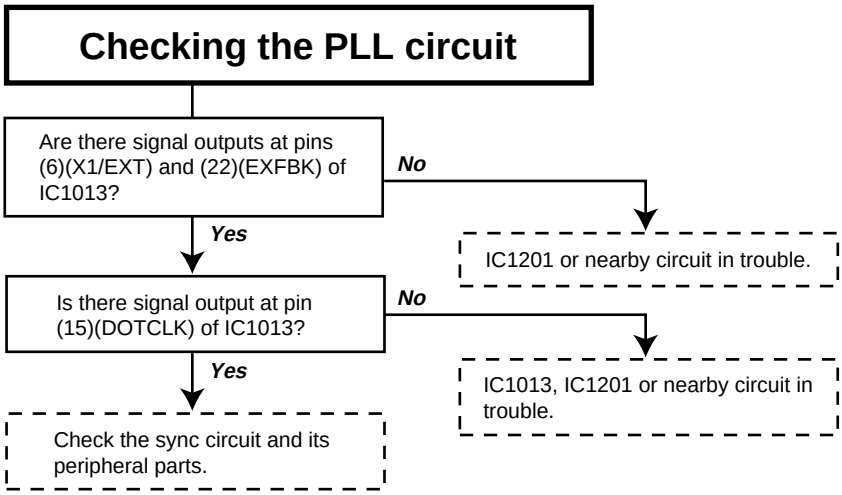

Checking the B signal line of output PWB
Are outputs at pins (6), (7) and (8) of IC4034 as specified?
No
IC4034, IC5002 or nearby circuit in trouble.
Yes
Are there signal inputs at pins (1) each of IC4001 thru IC4006?
No
Check connector CC. Do signals go to pins (22), (23), (25), (26), (28) and (29) of this connector?
No
Connector CC poorly soldered or in trouble.
Yes
Any of IC4001 thru IC4006 faulty.
Yes
Are there signal outputs at pins (7), (8) and (14) of IC4007 and IC4008?
No
IC4001 thru IC4006, IC4007, IC4008 or nearby circuit in trouble.
Yes
Are signals fed from pins (2) thru (7) of connector BP to the panel?
No
Connector BP poorly soldered or in trouble.
Yes
Does flicker happen?
No
Go to "Checking the image for shifting".
Yes
Is frame pulse fed to pin (1) of connector BP?
No
Does frame pulse go out of IC4077?
No
Are FRP1 and FRP2 signals fed to pins (9) and (12) of IC4077?
Yes
Yes
Yes
No
Is common bias at pin (24) of connector BP as specified?
Q4024, Q4025, Q4026 or their signal line in trouble.
IC4077 or nearby circuit in trouble.
IC1001 or nearby circuit in trouble.
Yes
Panel in trouble.

TROUBLE SHOOTING TABLE (Continued)

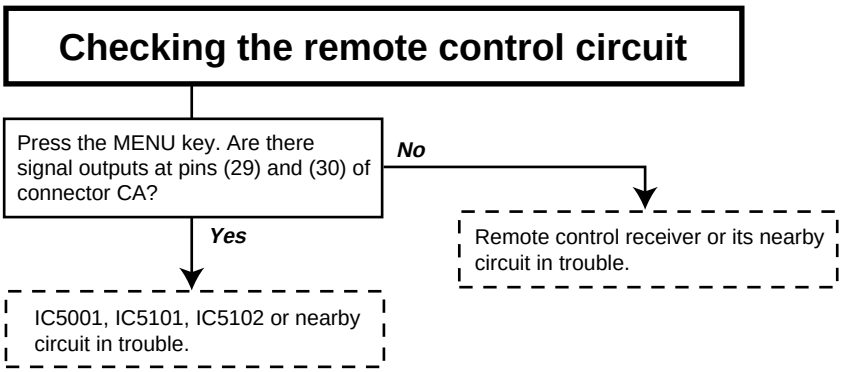
Checking synchronization

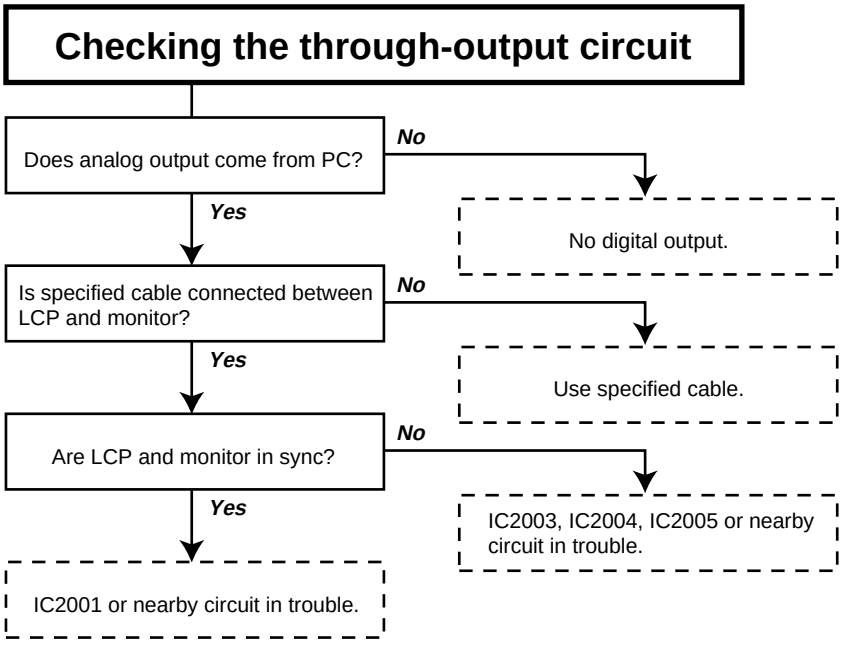

Do horizontal and vertical sync signals (at pins (13) and (14) of RGB connector) come out of PC?
No
Yes
Are there signal outputs at pins (3)(IN+) of IC2003 and IC2004?
No
Yes
Connector or nearby circuit in trouble.
Are there signal outputs at pins (15)(H) and (217)(V) of IC1201?
No
Yes
IC2003, IC2004 or nearby circuit in trouble.
Go to "Checking the PLL circuit".
Is there signal output at pin (3)(IN+) of IC2005?
No
Yes
Connector or nearby circuit in trouble.
Is there signal output at pin (216)(C) of IC1201?
No
Yes
IC2005 or nearby circuit in trouble.
Go to "Checking the PLL circuit".

Checking the PLL circuit

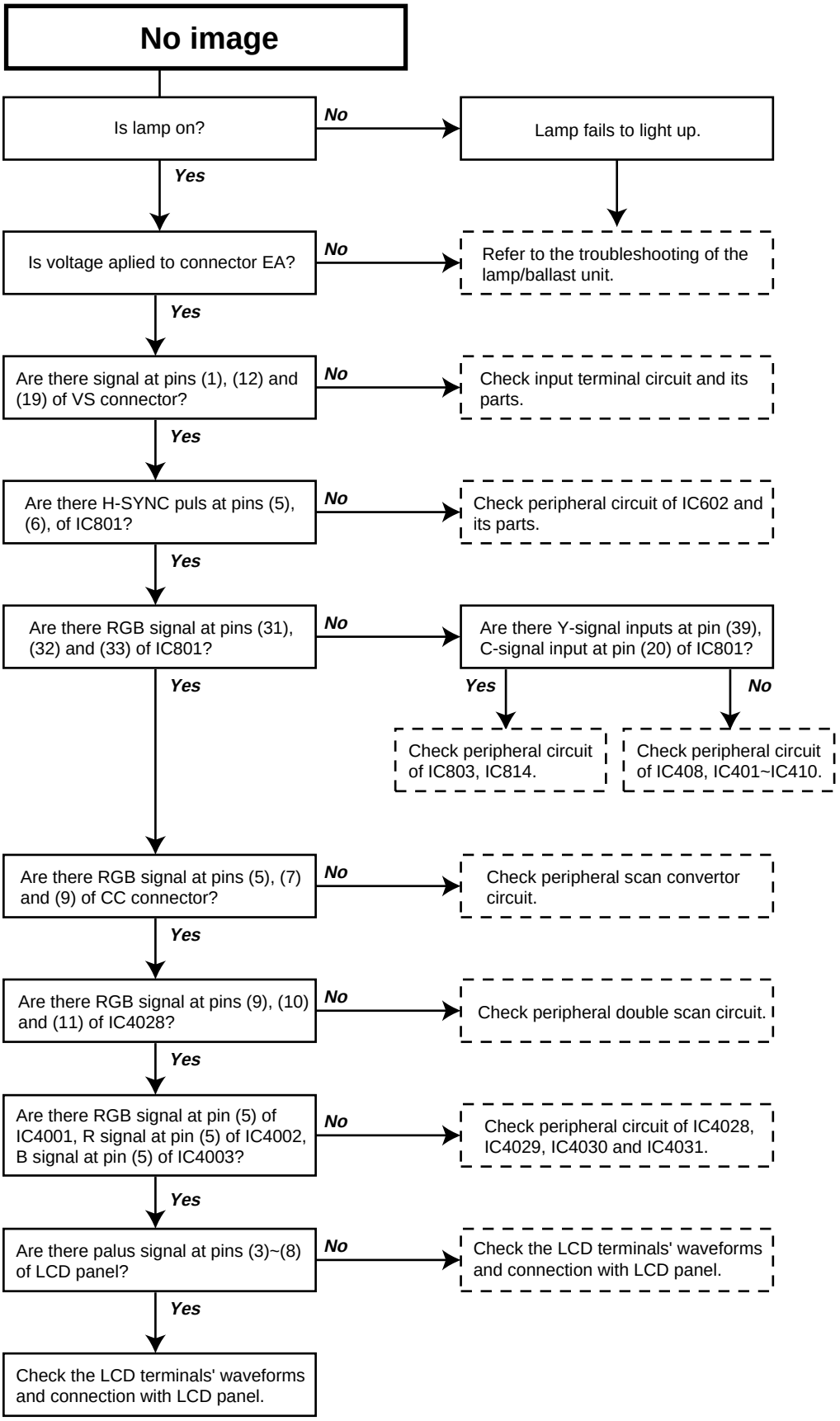

Are there signal outputs at pins (6)(X1/EXT) and (22)(EXFBK) of IC1013?
No
Yes
IC1201 or nearby circuit in trouble.
Is there signal output at pin (15)(DOTCLK) of IC1013?
No
Yes
IC1013, IC1201 or nearby circuit in trouble.
Check the sync circuit and its peripheral parts.

TROUBLE SHOOTING TABLE (Continued)


Checking the remote control circuit
Press the MENU key. Are there signal outputs at pins (29) and (30) of connector CA?
No
Remote control receiver or its nearby circuit in trouble.
Yes
IC5001, IC5101, IC5102 or nearby circuit in trouble.

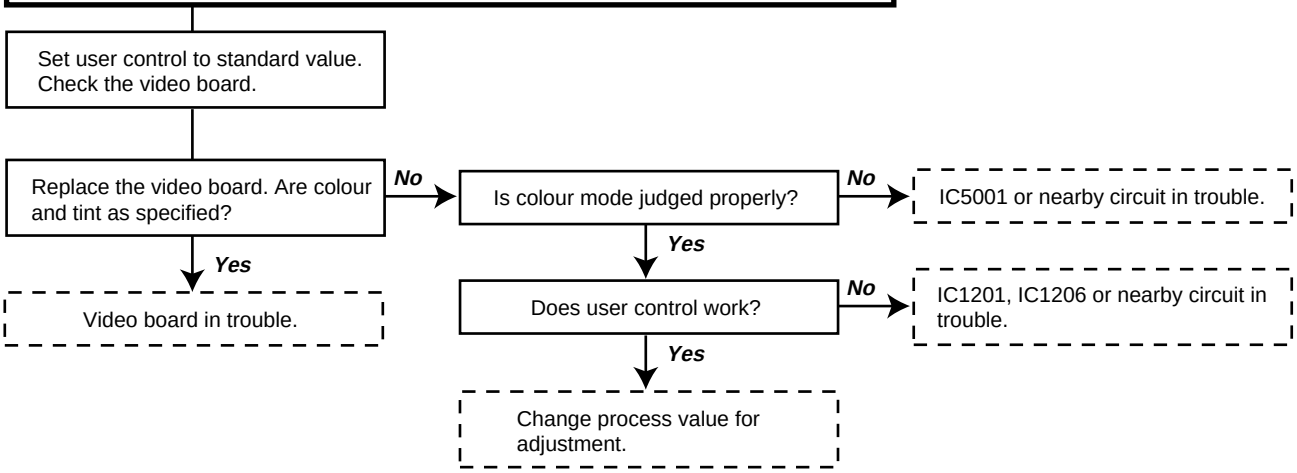


TROUBLE SHOOTING TABLE (Continued)

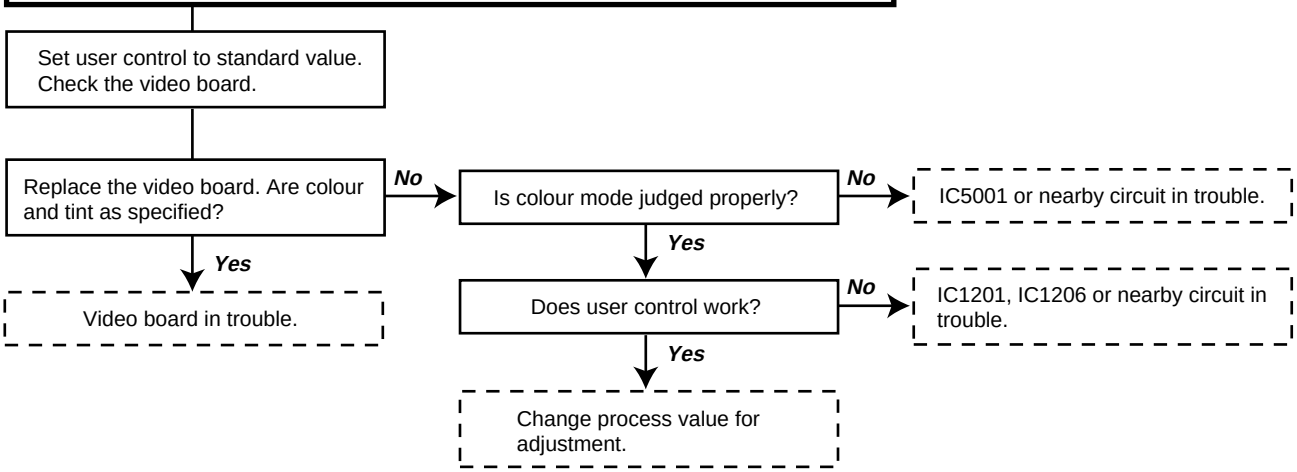

No image
Is lamp on?
No
Lamp fails to light up.
Yes
Is voltage aplied to connector EA?
No
Refer to the troubleshooting of the lamp/ballast unit.
Yes
Are there signal at pins (1), (12) and (19) of VS connector?
No
Check input terminal circuit and its parts.
Yes
Are there H-SYNC puls at pins (5), (6), of IC801?
No
Check peripheral circuit of IC602 and its parts.
Yes
Are there RGB signal at pins (31), (32) and (33) of IC801?
No
Are there Y-signal inputs at pin (39), C-signal input at pin (20) of IC801?
Yes
No
Check peripheral circuit of IC803, IC814.
Check peripheral circuit of IC408, IC401~IC410.
Yes
Are there RGB signal at pins (5), (7) and (9) of CC connector?
No
Check peripheral scan convertor circuit.
Yes
Are there RGB signal at pins (9), (10) and (11) of IC4028?
No
Check peripheral double scan circuit.
Yes
Are there RGB signal at pin (5) of IC4001, R signal at pin (5) of IC4002, B signal at pin (5) of IC4003?
No
Check peripheral circuit of IC4028, IC4029, IC4030 and IC4031.
Yes
Are there palus signal at pins (3)~(8) of LCD panel?
No
Check the LCD terminals' waveforms and connection with LCD panel.
Yes
Check the LCD terminals' waveforms and connection with LCD panel.

TROUBLE SHOOTING TABLE (Continued)

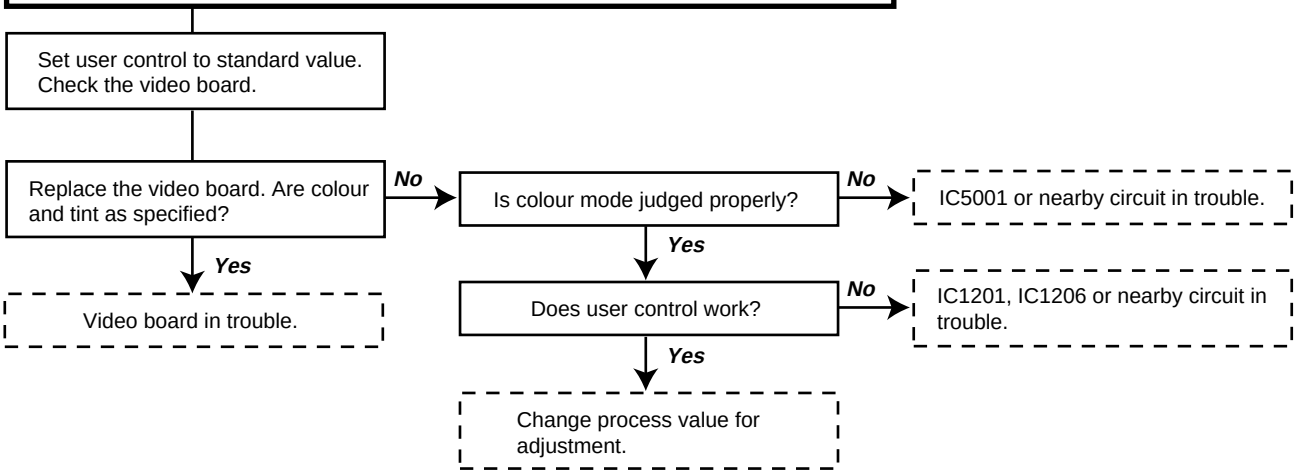
No colour or unusual tint with NTSC signal


Set user control to standard value. Check the video board.
Replace the video board. Are colour and tint as specified?
No
Is colour mode judged properly?
No
IC5001 or nearby circuit in trouble.
Yes
Video board in trouble.
Yes
Does user control work?
No
IC1201, IC1206 or nearby circuit in trouble.
Yes
Change process value for adjustment.

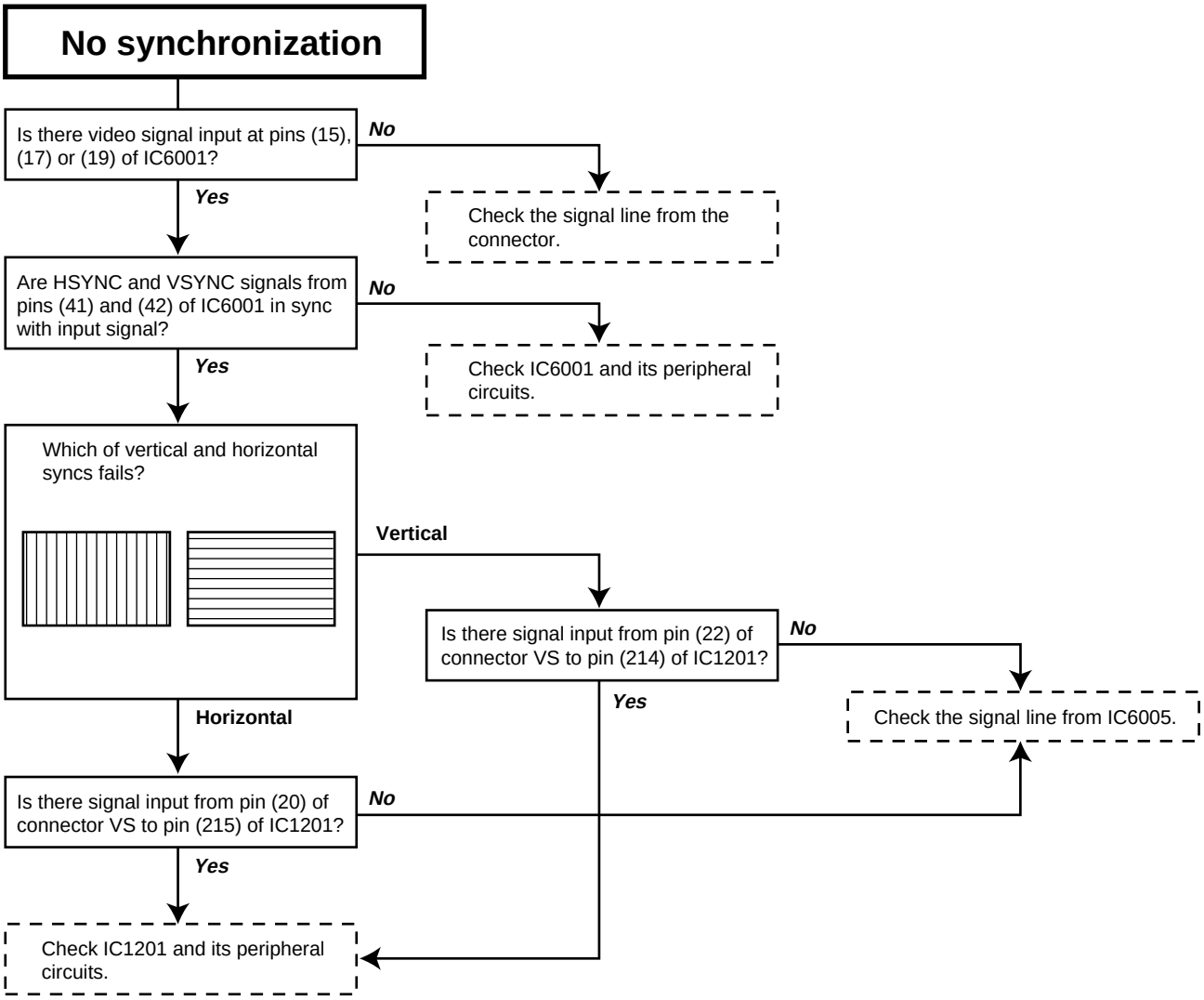
No colour or unusual tint with PAL signal


Set user control to standard value. Check the video board.
Replace the video board. Are colour and tint as specified?
No
Is colour mode judged properly?
No
IC5001 or nearby circuit in trouble.
Yes
Video board in trouble.
Yes
Does user control work?
No
IC1201, IC1206 or nearby circuit in trouble.
Yes
Change process value for adjustment.

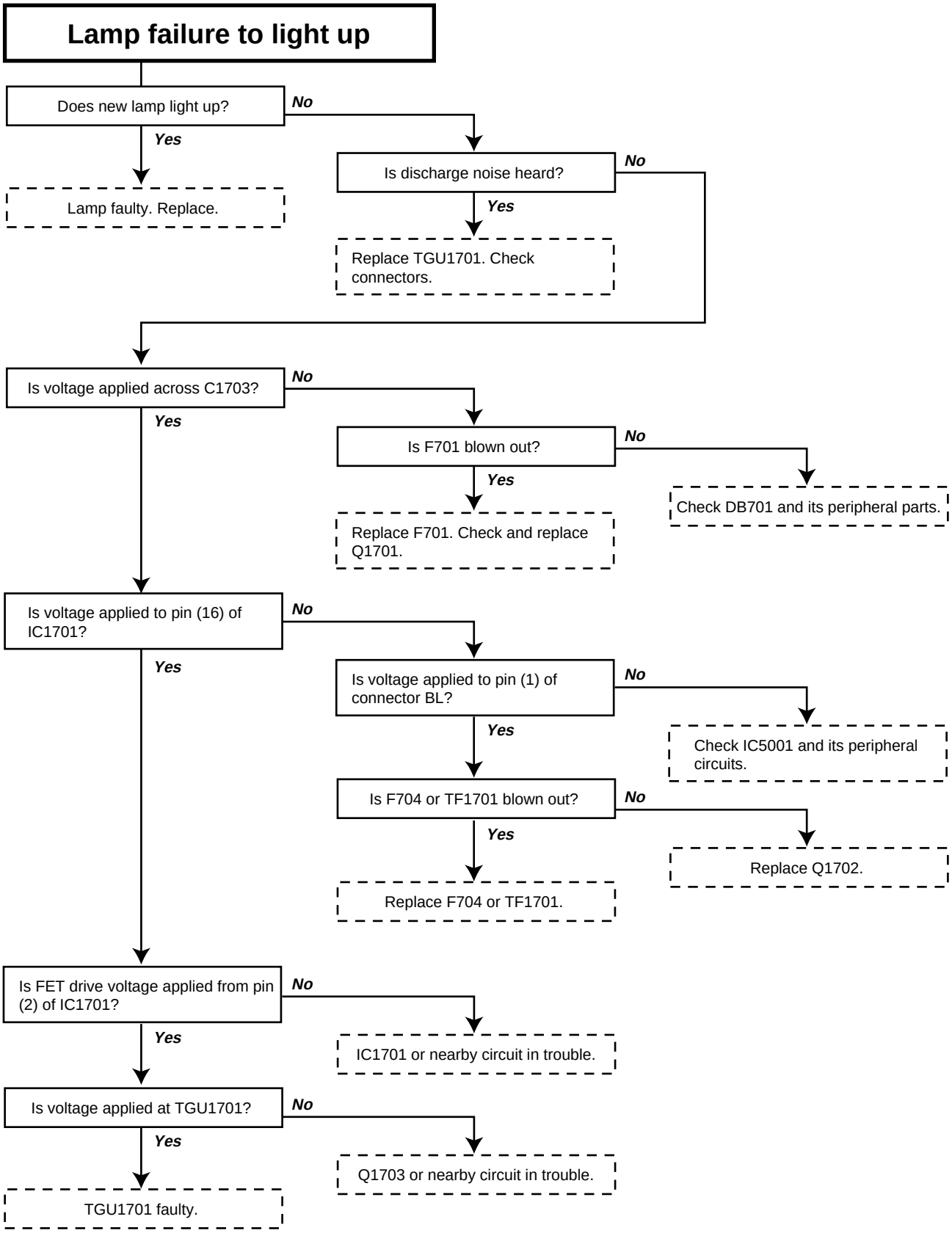
No colour or unusual tint with SECAM signal


Set user control to standard value. Check the video board.
Replace the video board. Are colour and tint as specified?
No
Is colour mode judged properly?
No
IC5001 or nearby circuit in trouble.
Yes
Video board in trouble.
Yes
Does user control work?
No
IC1201, IC1206 or nearby circuit in trouble.
Yes
Change process value for adjustment.

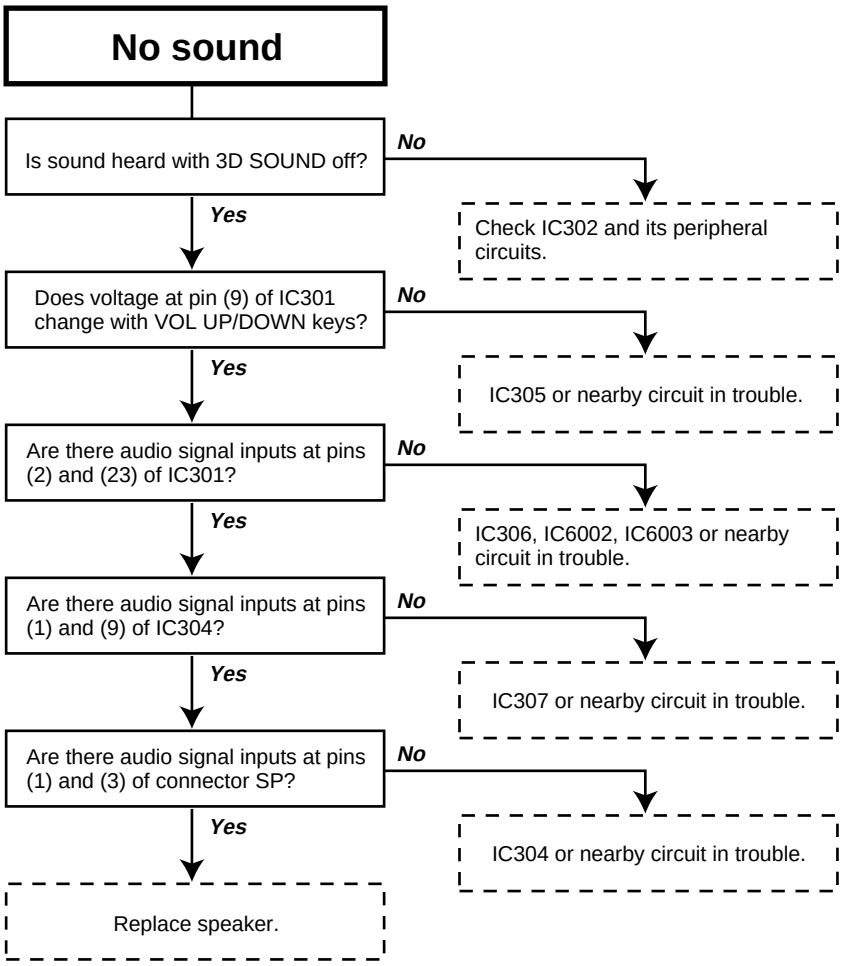
TROUBLE SHOOTING TABLE (Continued)

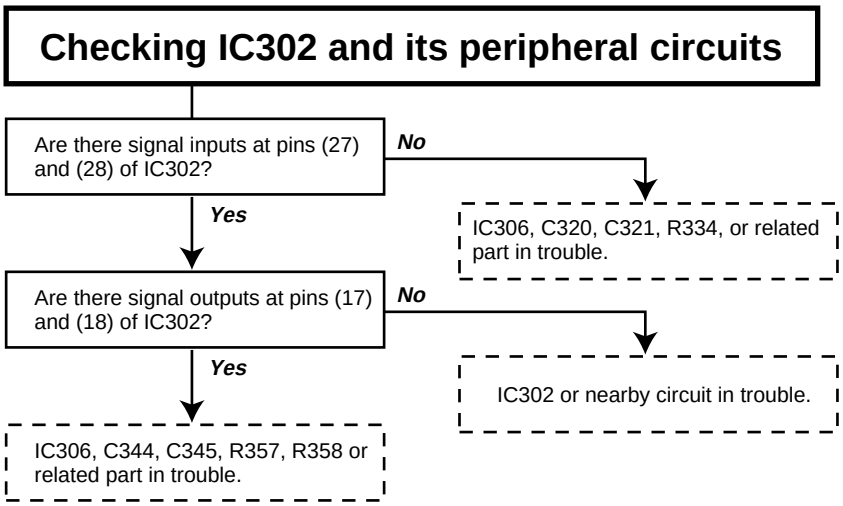

No synchronization
Is there video signal input at pins (15), (17) or (19) of IC6001?
No
Check the signal line from the connector.
Yes
Are HSYNC and VSYNC signals from pins (41) and (42) of IC6001 in sync with input signal?
No
Check IC6001 and its peripheral circuits.
Yes
Which of vertical and horizontal syncs fails?
Vertical
Is there signal input from pin (22) of connector VS to pin (214) of IC1201?
No
Check the signal line from IC6005.
Yes
Horizontal
Is there signal input from pin (20) of connector VS to pin (215) of IC1201?
No
Yes
Check IC1201 and its peripheral circuits.

TROUBLE SHOOTING TABLE (Continued)



TROUBLE SHOOTING TABLE (Continued)

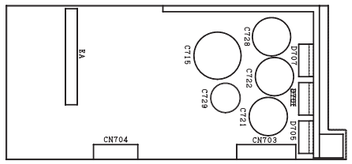

No sound
Is sound heard with 3D SOUND off?
No
Yes
Check IC302 and its peripheral circuits.
Does voltage at pin (9) of IC301 change with VOL UP/DOWN keys?
No
Yes
IC305 or nearby circuit in trouble.
Are there audio signal inputs at pins (2) and (23) of IC301?
No
Yes
IC306, IC6002, IC6003 or nearby circuit in trouble.
Are there audio signal inputs at pins (1) and (9) of IC304?
No
Yes
IC307 or nearby circuit in trouble.
Are there audio signal inputs at pins (1) and (3) of connector SP?
No
Yes
IC304 or nearby circuit in trouble.
Replace speaker.


Checking IC302 and its peripheral circuits
Are there signal inputs at pins (27) and (28) of IC302?
No
Yes
IC306, C320, C321, R334, or related part in trouble.
Are there signal outputs at pins (17) and (18) of IC302?
No
Yes
IC302 or nearby circuit in trouble.
IC306, C344, C345, R357, R358 or related part in trouble.

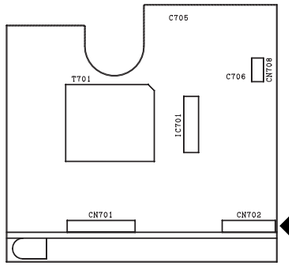
XV-Z1E/A	XV-Z1E/A

CHASSIS LAYOUT / CHASSIS-ANORDNUNG

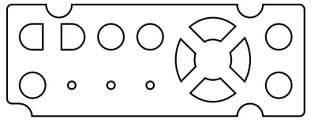
POWER/BALLAST UNIT–C
REDENC0228CEZC
REDENC0240CEZC



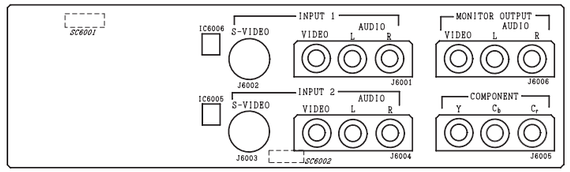
POWER/BALLAST UNIT–B
REDENC0228CEZB
REDENC0240CEZB



OPERATION KEY UNIT
RUNTK0566CEZZ

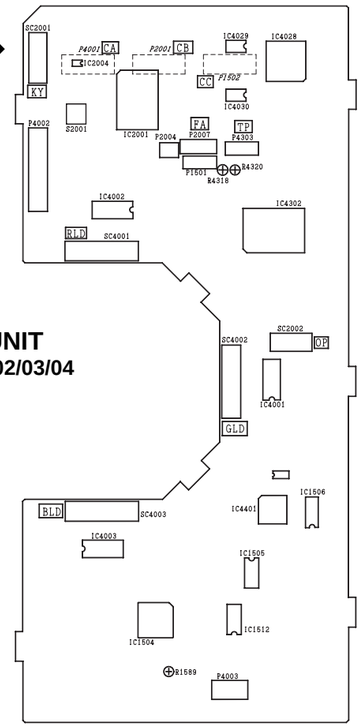


INPUT UNIT
CTANZ0712CE01

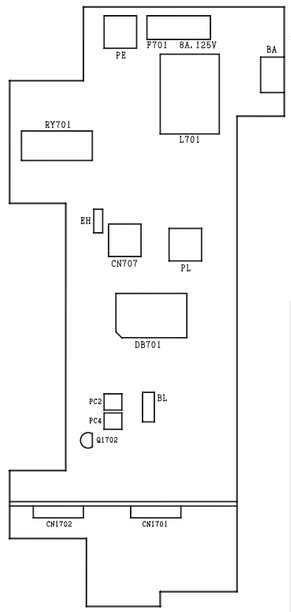


R/C RECEIVER UNIT
DUNTK9552DE01/02/03/04

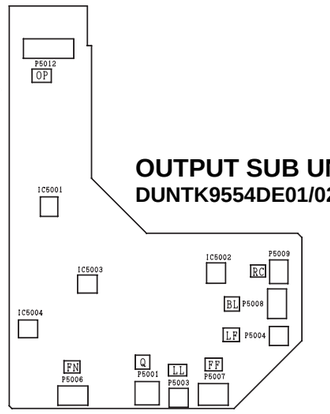
OUTPUT UNIT
DUNTK9553DE01/02/03/04



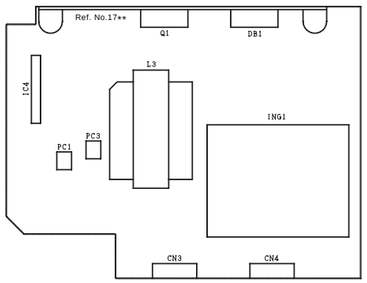
POWER/BALLAST UNIT–A
REDENC0228CEZA
REDENC0240CEZA



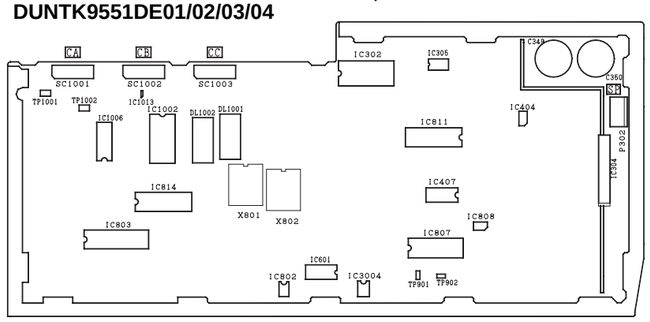
OUTPUT SUB UNIT
DUNTK9554DE01/02/03/04



POWER/BALLAST UNIT–D
REDENC0228CEZD
REDENC0240CEZD

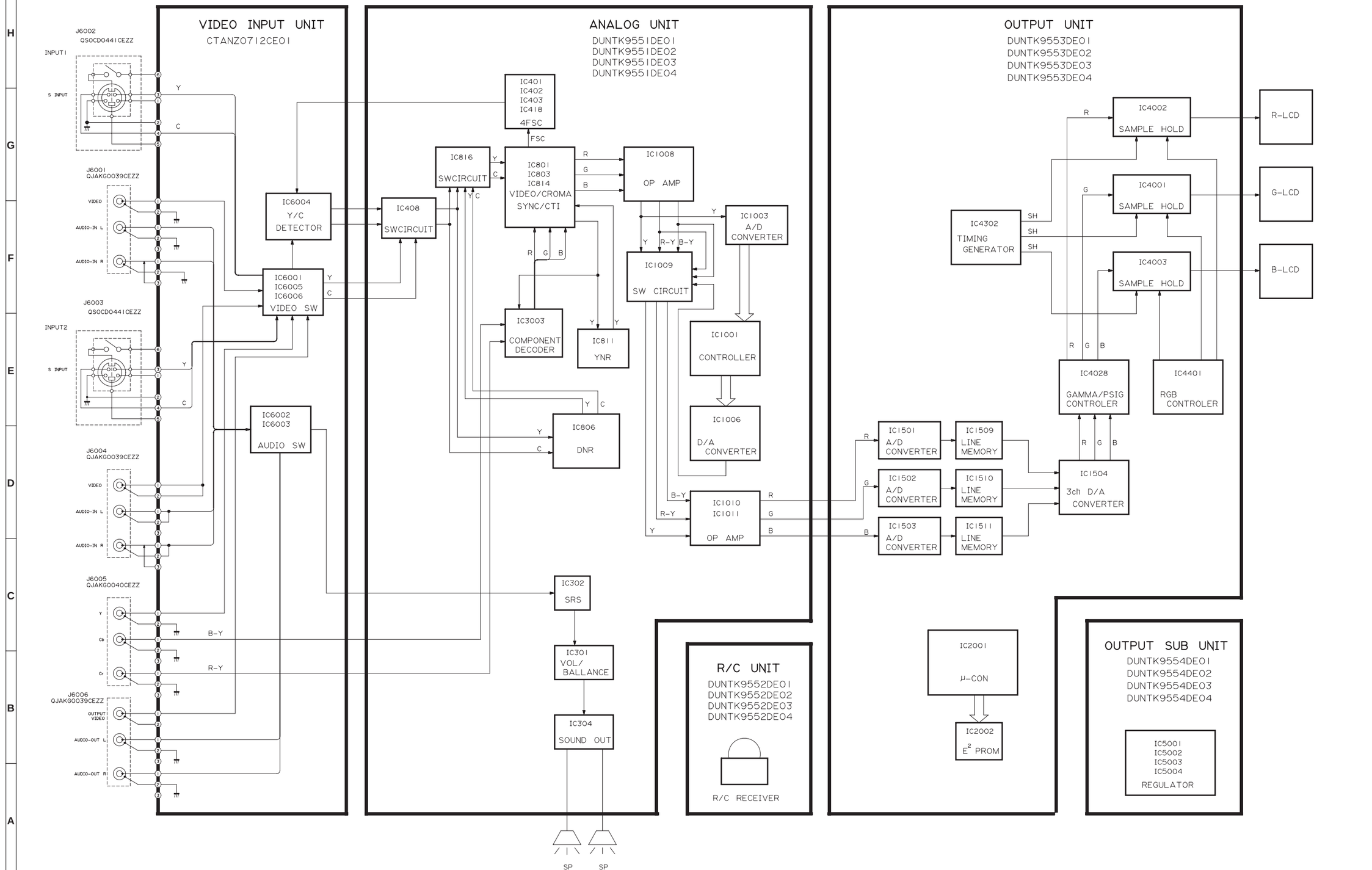


SIGNAL UNIT
DUNTK9551DE01/02/03/04



1 2 3 4 5 6 7 8 9 10 11 12

BLOCK DIAGRAM / BLOCKSCHALTBILD

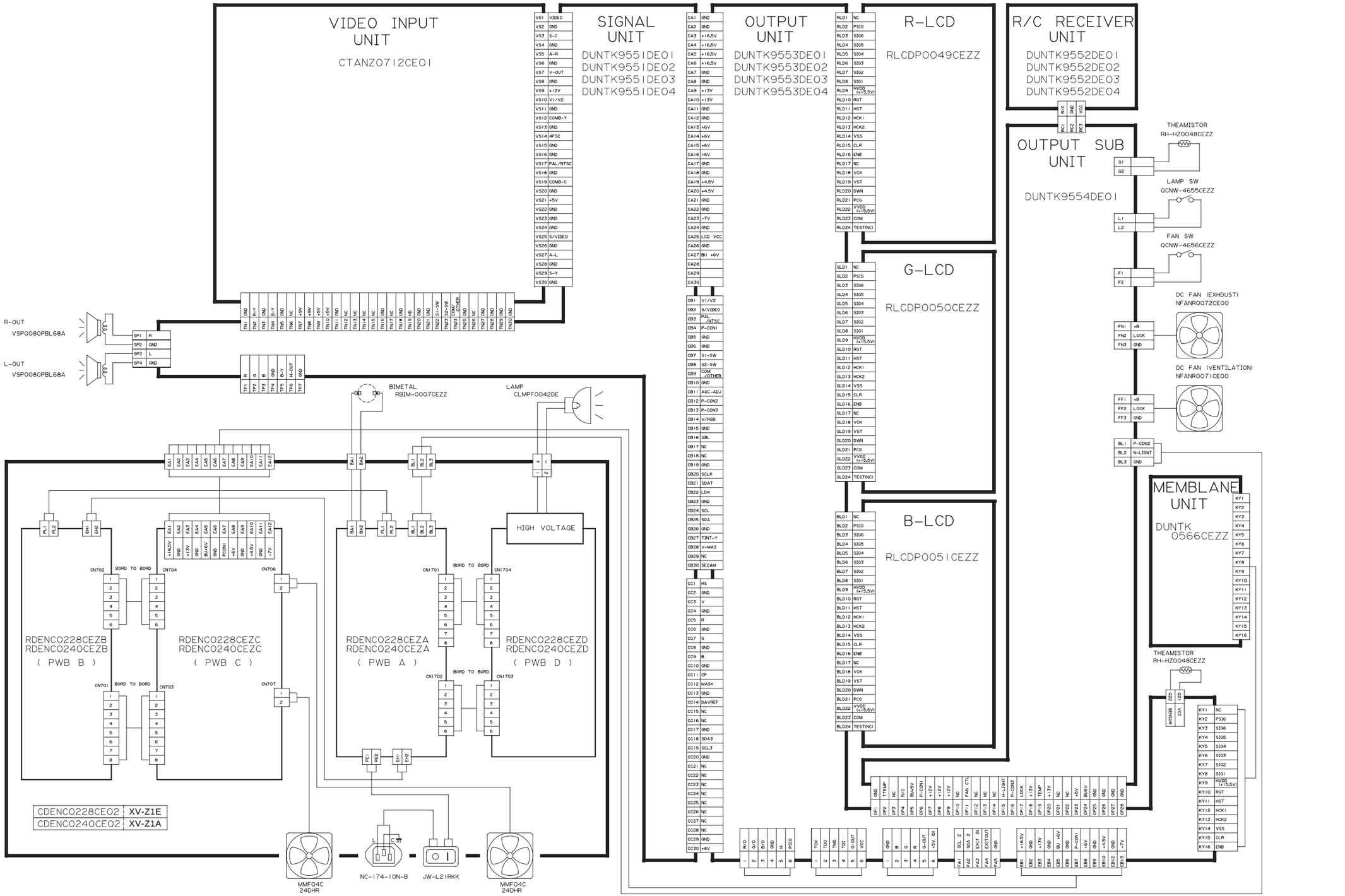


H G F E D C B A

1 2 3 4 5 6 7 8 9 10 11 12

XV-Z1E/A	XV-Z1E/A

OVERALL WIRING DIAGRAM / GESAMTSCHALTPLAN



DESCRIPTION OF SCHEMATIC DIAGRAM

VOLTAGE MEASUREMENT CONDITION:

1. Voltages at test points are measured at the supply voltage of AC 220V. Signals are fed by a colour bar signal generator for servicing purpose and the above voltages are measured with a 20-kohm/V tester.

WAVEFORM MEASUREMENT CONDITION:

1. Waveforms at test points are observed at the supply voltage of AC 220V. Signals are fed by a colour bar signal generator for servicing purpose.

INDICATION OF RESISTOR & CAPACITOR:

RESISTOR

1. The unit of resistance "Ω" is omitted. (K=kΩ=1000 Ω, M=MΩ).
2. All resistors are ± 5%, unless otherwise noted. (J= ± 5%, F= ± 1%, D= ± 0.5%)
3. All resistors are 1/10W, unless otherwise noted.
4. All resistors are Carbon type, unless otherwise noted.

Ⓒ : Solid Ⓦ : Cement
Ⓢ : Oxide Film Ⓣ : Special
Ⓝ : Metal Coating

CAPACITOR

1. All capacitors are μF, unless otherwise noted. (P=pF=μμF).
2. All capacitors are 50V, unless otherwise noted.
3. All capacitors are Ceramic type, unless otherwise noted.

(ML): Mylar (TA): Tantalum
(PF): Polypro Film (ST): Styrol

CAUTION:
This circuit diagram is original one, therefore there may be a slight difference from yours.

SAFETY NOTES:

1. ***DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACEING PARTS.***
2. ***SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.***

IMPORTANT SAFETY NOTICE:

PARTS MARKED WITH "⚠"( )ARE IMPORTANT FOR MAINTAINING THE SAFETY OF THE SET. BE SURE TO REPLACE THESE PARTS WITH SPECIFIED ONES FOR MAINTAINING THE SAFETY AND PERFORMANCE OF THE SET.

BESCHREIBUNG DES SCHEMATISCHEN SCHALTPLANS

SPANNUNGSMESSUNGEN:

1. Spannungen an den Prüfpunkten werden bei einer Netzspannung von 220V gemessen, Signale werden für die Wartung mit einem Farbbalken-Signal generator zugeführt, und Spannungen werden mit einem Meßinstrument (20 kΩ/V) ermittelt.

SIGNALFORMMESSUNGEN:

1. Die Wellenformen an den Testpunkten werden bei einer Netzspannung von 220V verfolgt. Signale werden für die Wartung mit einem Farbbalken-Signal generator zugeführt.

BEZEICHNUNG DES WIDERSTANDS UND KONDENSATORS:

WIDERSTAND

1. Die Widerstandseinheit "Ω" wird weggelassen. (K=kΩ=1000 Ω, M=MΩ).
2. Alle Widerstände haben ± 5%, sofern nicht anders angegeben. (J= ± 5%, F= ± 1%, D= ± 0.5%)
3. Alle Widerstände haben 1/10W, sofern nicht anders angegeben.
4. Alle Widerstände sind Kohletyp, sofern nicht anders angegeben.

Ⓒ : Fest Ⓦ : Zement
Ⓢ : Oxidfilm Ⓣ : Spezial
Ⓝ : Metallüberzug

KONDENSATOR

1. Die Kapazitätseinheit ist μF, sofern nicht anders angegeben. (P=pF=μμF).
2. Alle Kondensatoren haben 50V, sofern nicht anders angegeben.
3. Alle Kondensatoren sind Keramiktyp, sofern nicht anders angegeben.

(ML): Mylar (TA): Tantal
(PF): Polyprofilm (ST): Styrol

ACHTUNG:
bei diesem Schaltplan handelt es sich um den ursprünglichen. Esönnen daher geringfügige Unterschiede zu dem Ihrem bestehen.

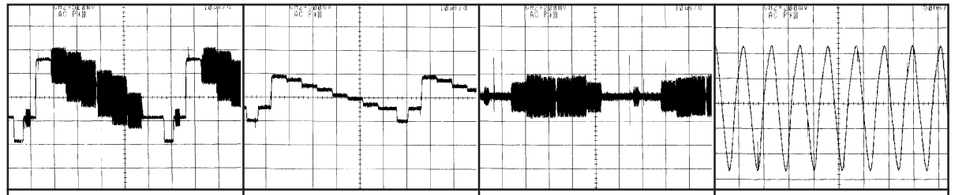
SICHERHEITSANMERKUNGEN:

1. ***VOR DEM AUSWECHSELN VON TEILEN MUSS UNBEDINGT NETZSTECKER AUS DER NETZSTECKDOSE GEZOGEN WERDEN.***
2. ***DIE WARMEABLEITER DER HALBLEITER SOLLTEN BEIM BETRIEB DES CHASSIS ALS MÖGLICHE URSACHEN VON GEFÄHRLICHEN ELEKTRISCHEN SCHLÄGEN BETRACHTET WERDEN.***

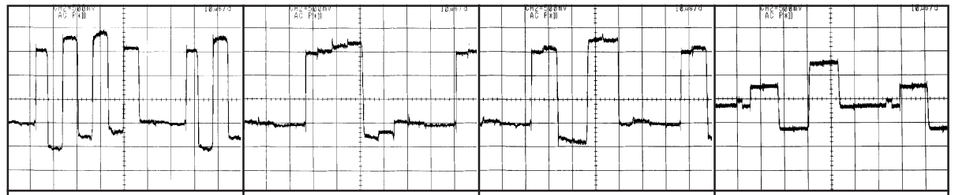
WICHTIGE SICHERHEITSANMERKUNGEN:

MIT "⚠"( )BEZEICHNETEN TEILE SIND BESONDERS WICHTIG FÜR DIE AUFRECHTERHALTUNG DER SICHERHEIT . BEIM WECHDIESER TEILE SOLLTEN DIE VORGESCHRIEBENEN TEILE IMMER VERWENDET WERDEN, UM SOWOHL DIE SICHERHEIT ALS AUCH DIE LEISTUNG DES GERÄTES AUFRECHTZUERHALTEN.

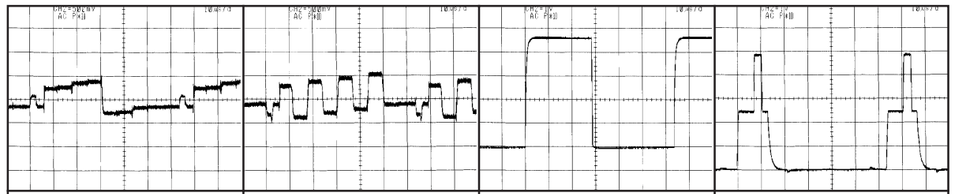
WAVEFORMSWELLENFORMEN WELLENFORMEN



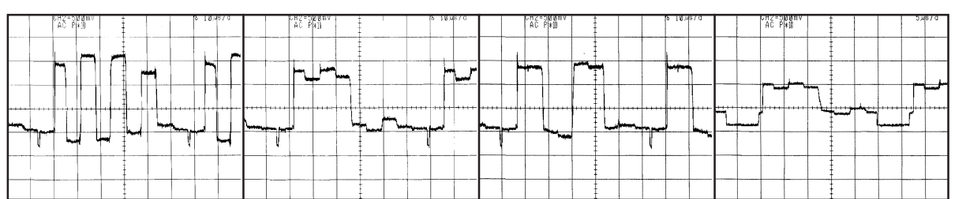
① SC6001 H: 10μsec/div V: 500mV/div
② SC6001 H: 10μsec/div V: 500mV/div
③ SC6001 H: 10μsec/div V: 200mV/div
④ SC6001 H: 50μsec/div V: 200mV/div



⑤ IC801 H: 10μsec/div V: 500mV/div
⑥ IC801 H: 10μsec/div V: 500mV/div
⑦ IC801 H: 10μsec/div V: 500mV/div
⑧ IC801 H: 10μsec/div V: 500mV/div

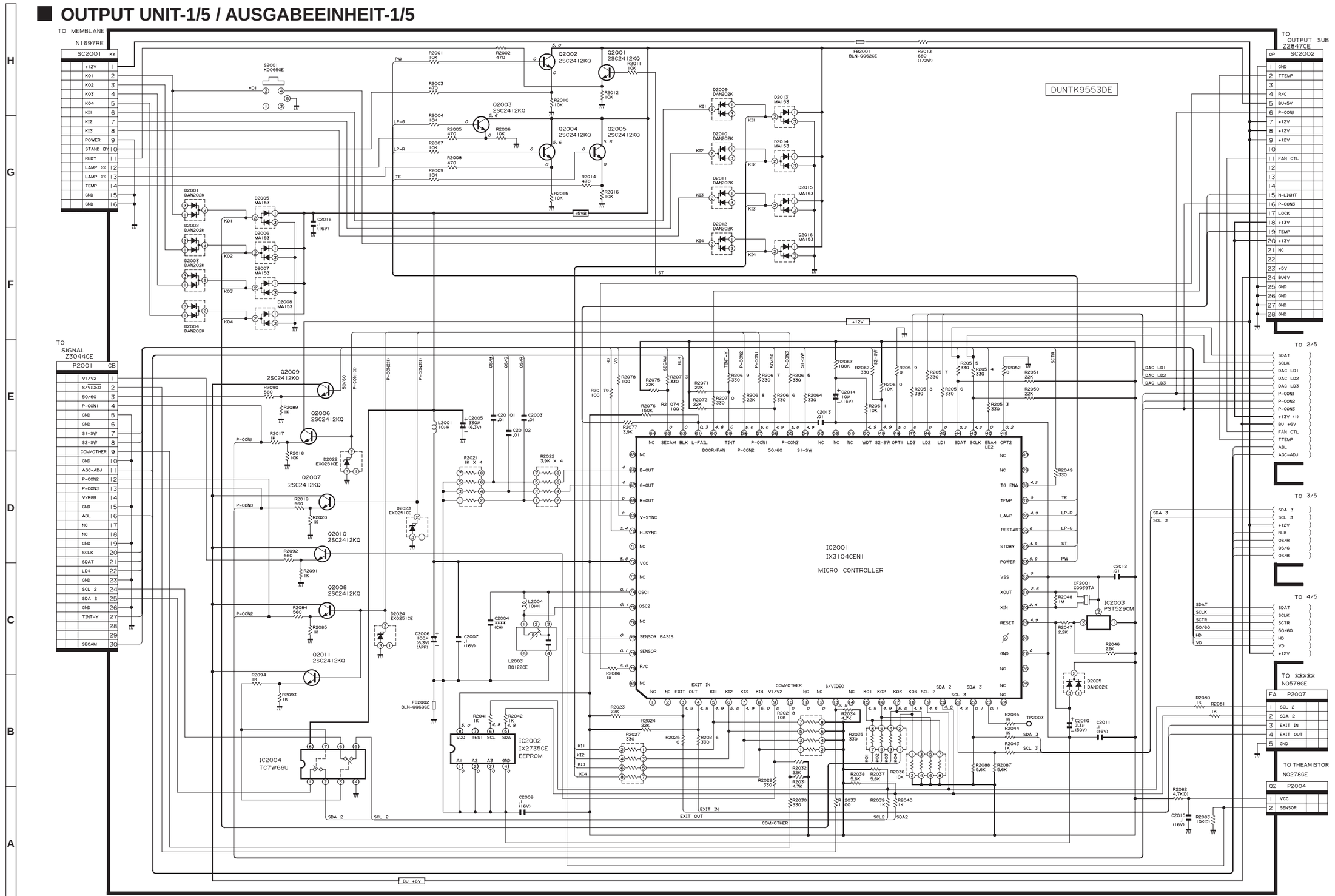


⑨ IC801 H: 10μsec/div V: 500mV/div
⑩ IC801 H: 10μsec/div V: 500mV/div
⑪ IC801 H: 10μsec/div V: 1V/div
⑫ IC801 H: 10μsec/div V: 1V/div

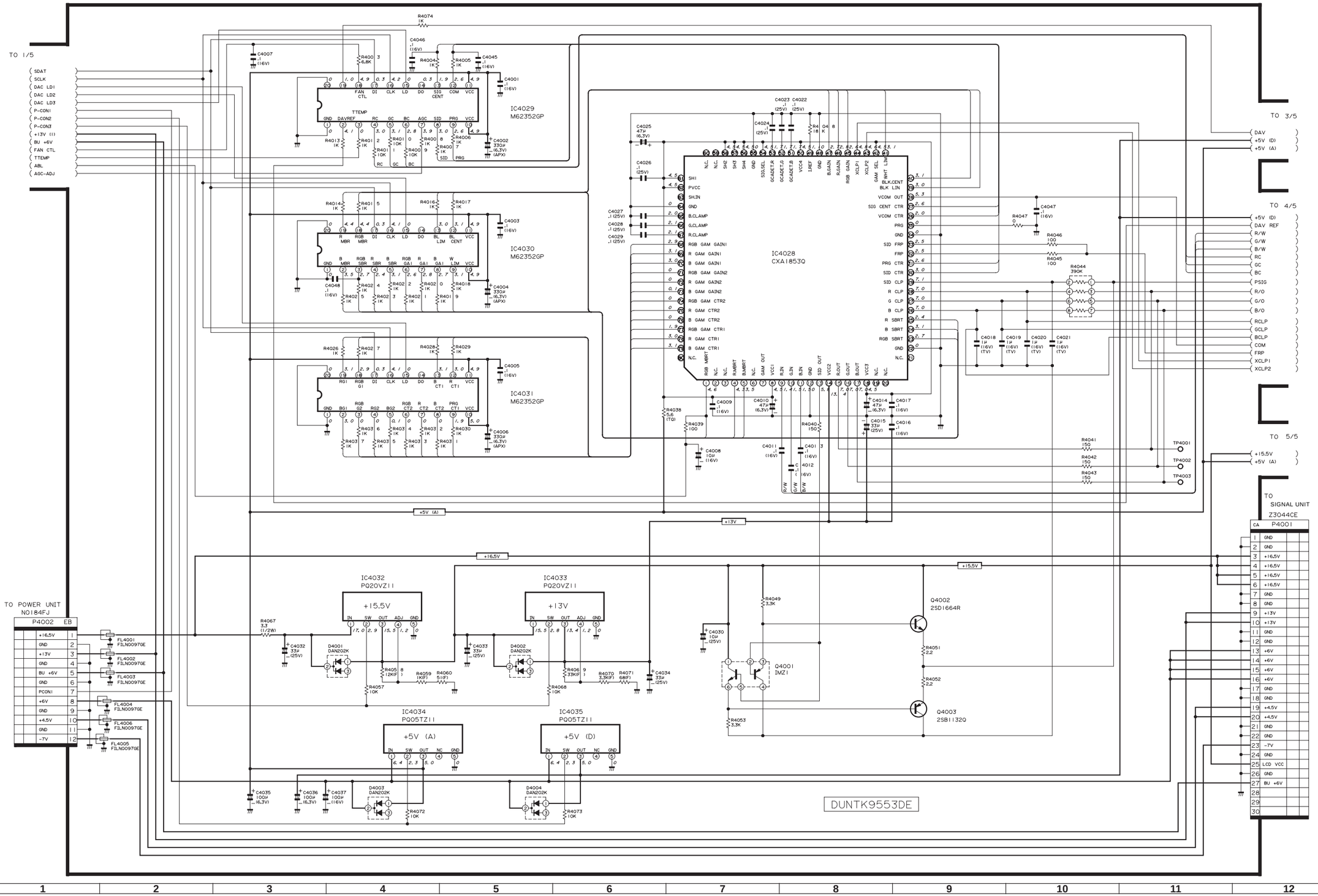


⑬ P1501 H: 10μsec/div V: 500mV/div
⑭ P1501 H: 10μsec/div V: 500mV/div
⑮ P1501 H: 10μsec/div V: 500mV/div
⑯ P1501 H: 5μsec/div V: 500mV/div

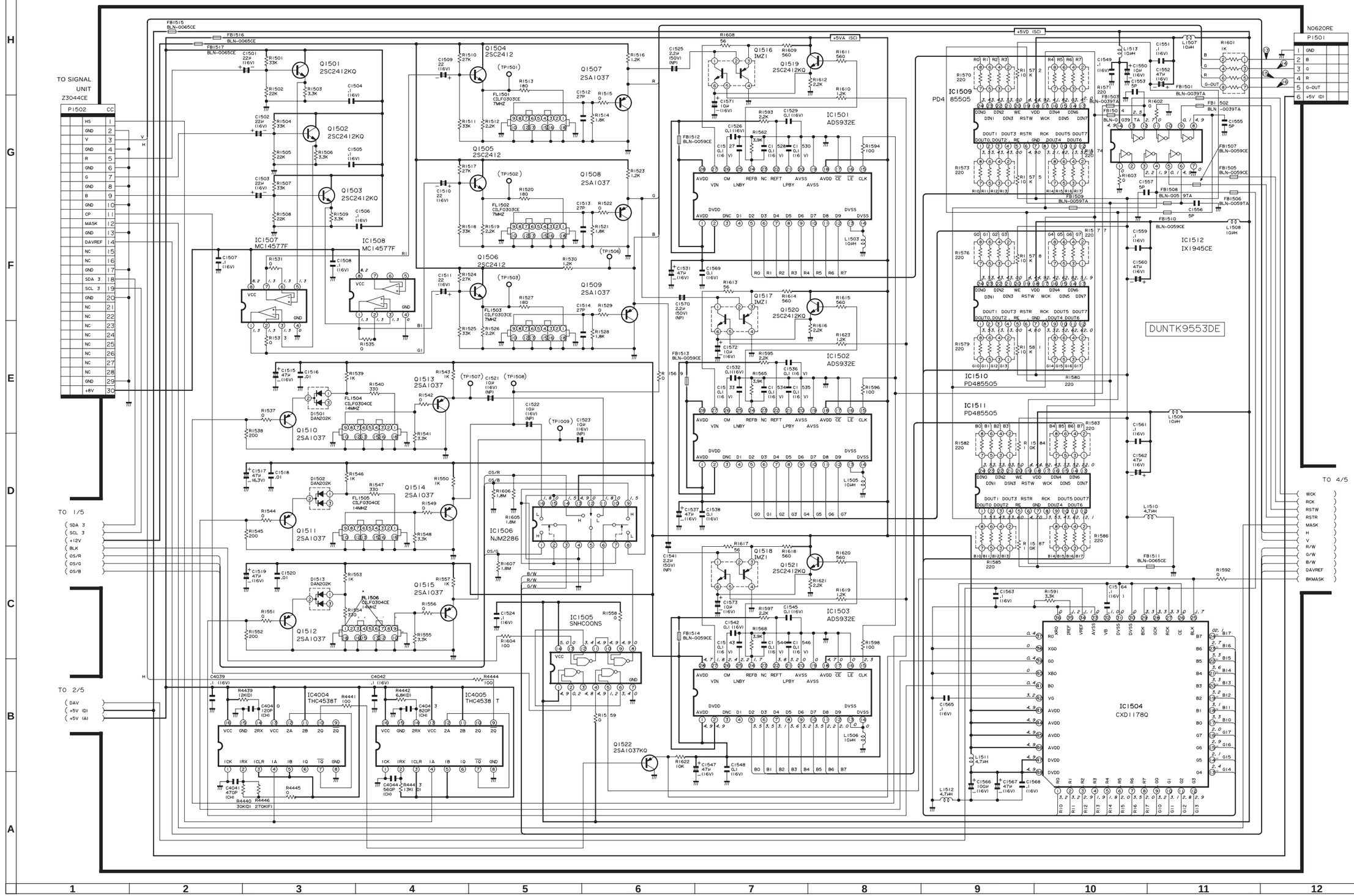
OUTPUT UNIT-1/5 / AUSGABEEINHEIT-1/5



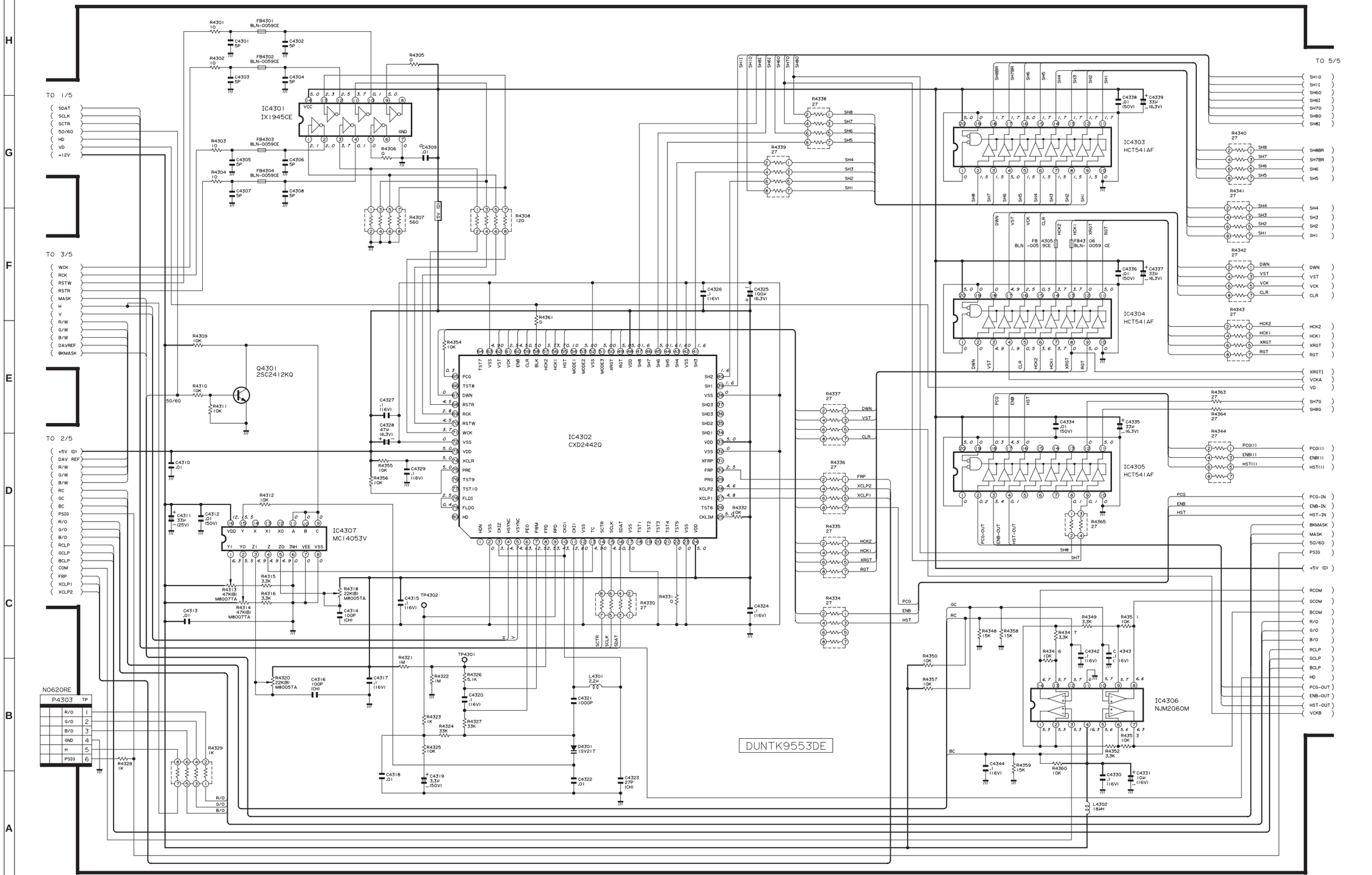
OUTPUT UNIT-2/5 / AUSGABEEINHEIT-2/5



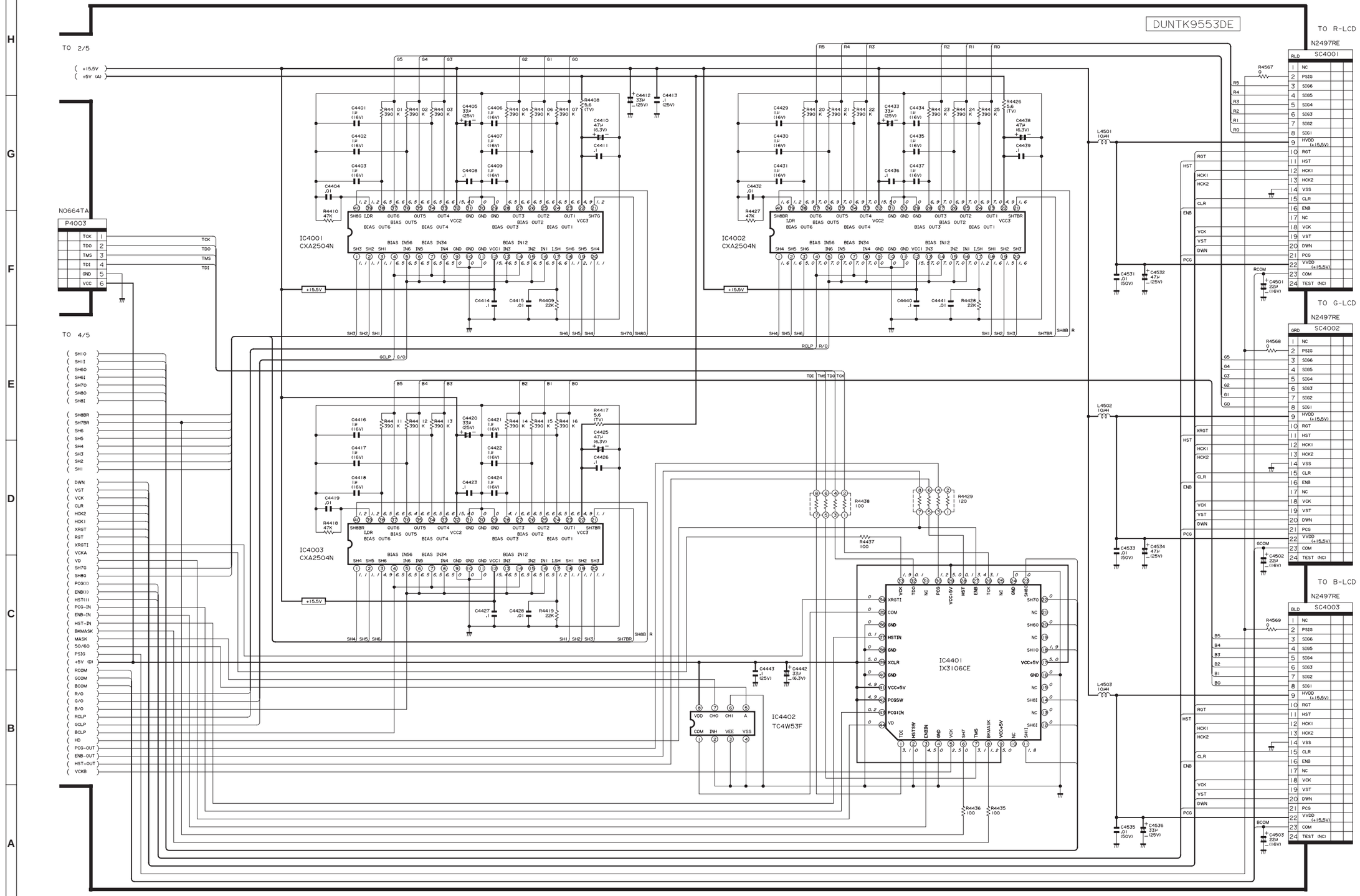
OUTPUT UNIT-3/5 / AUSGABEEINHEIT-3/5



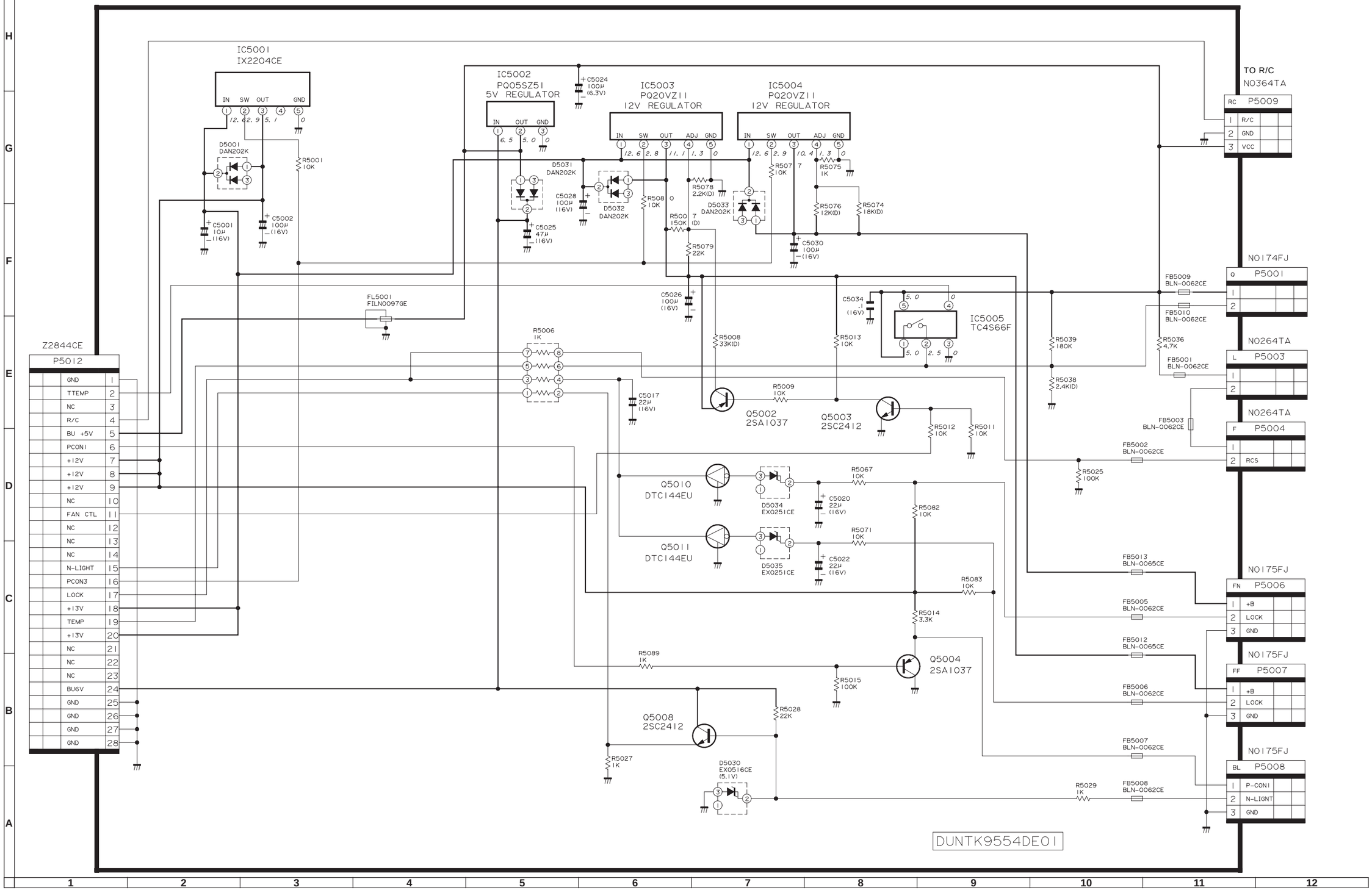
OUTPUT UNIT-4/5 / AUSGABEEINHEIT-4/5



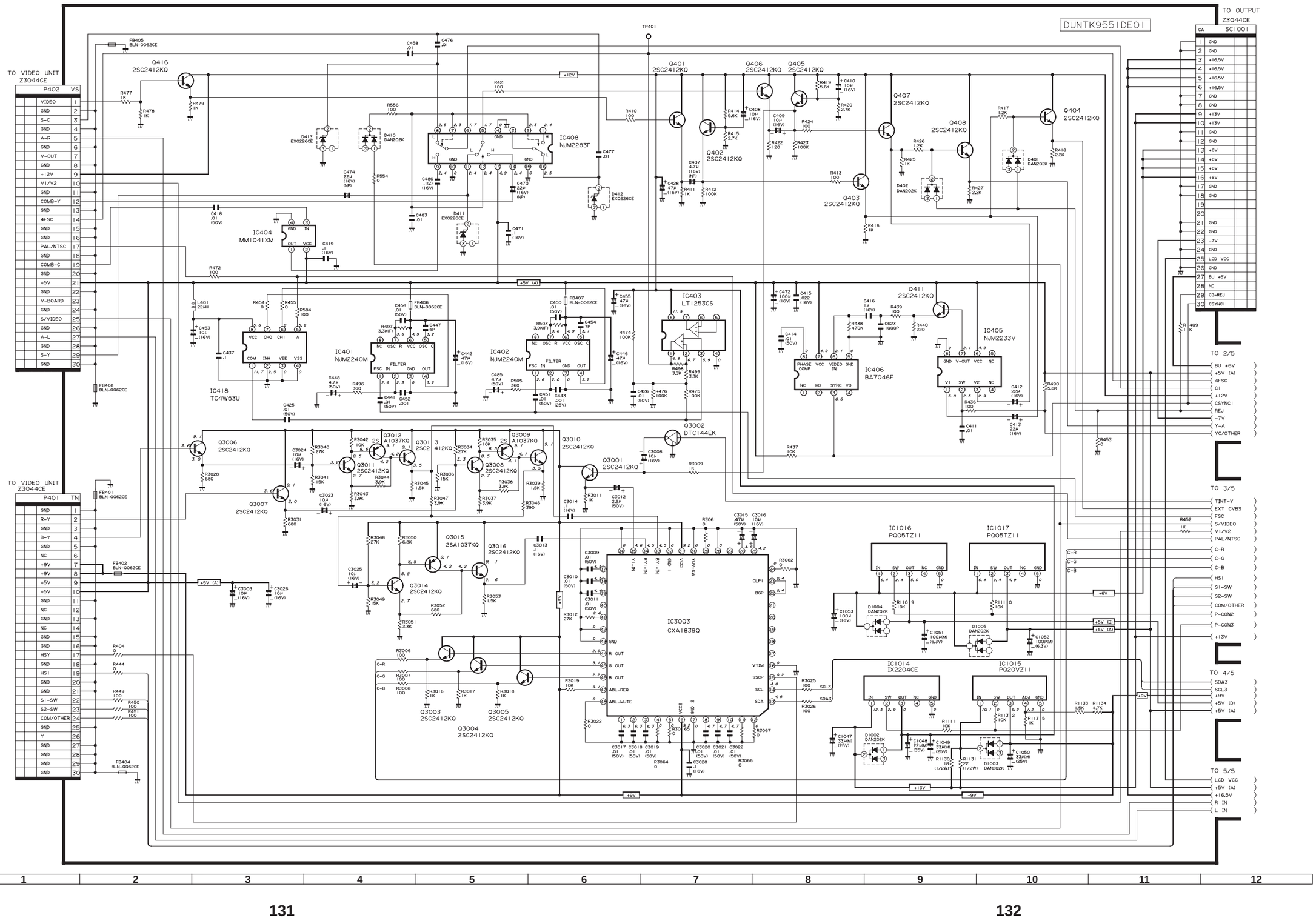
OUTPUT UNIT-5/5 / AUSGABEEINHEIT-5/5



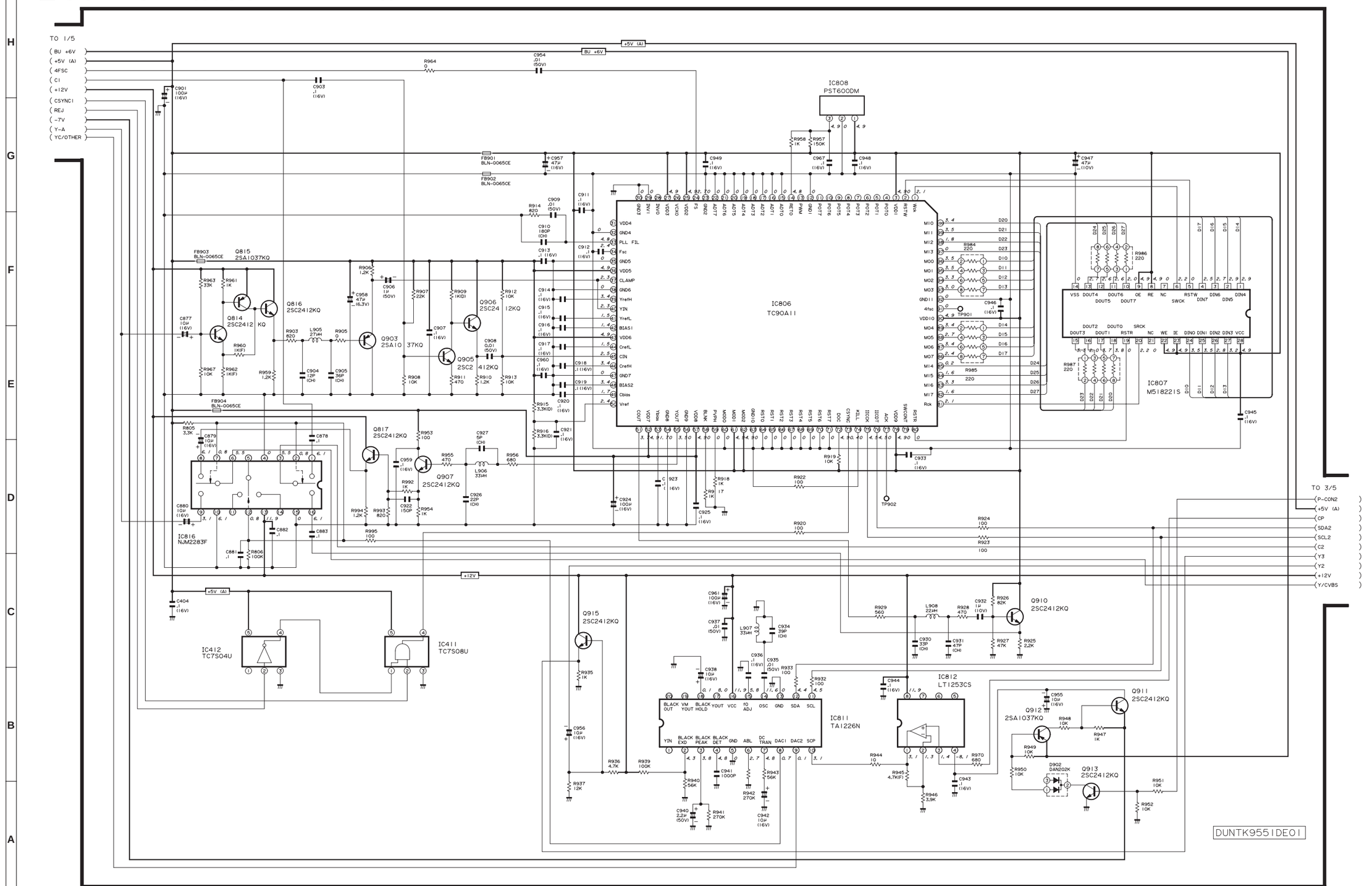
■ OUTPUT SUB UNIT / AUSGABE-NEBENEINHEIT



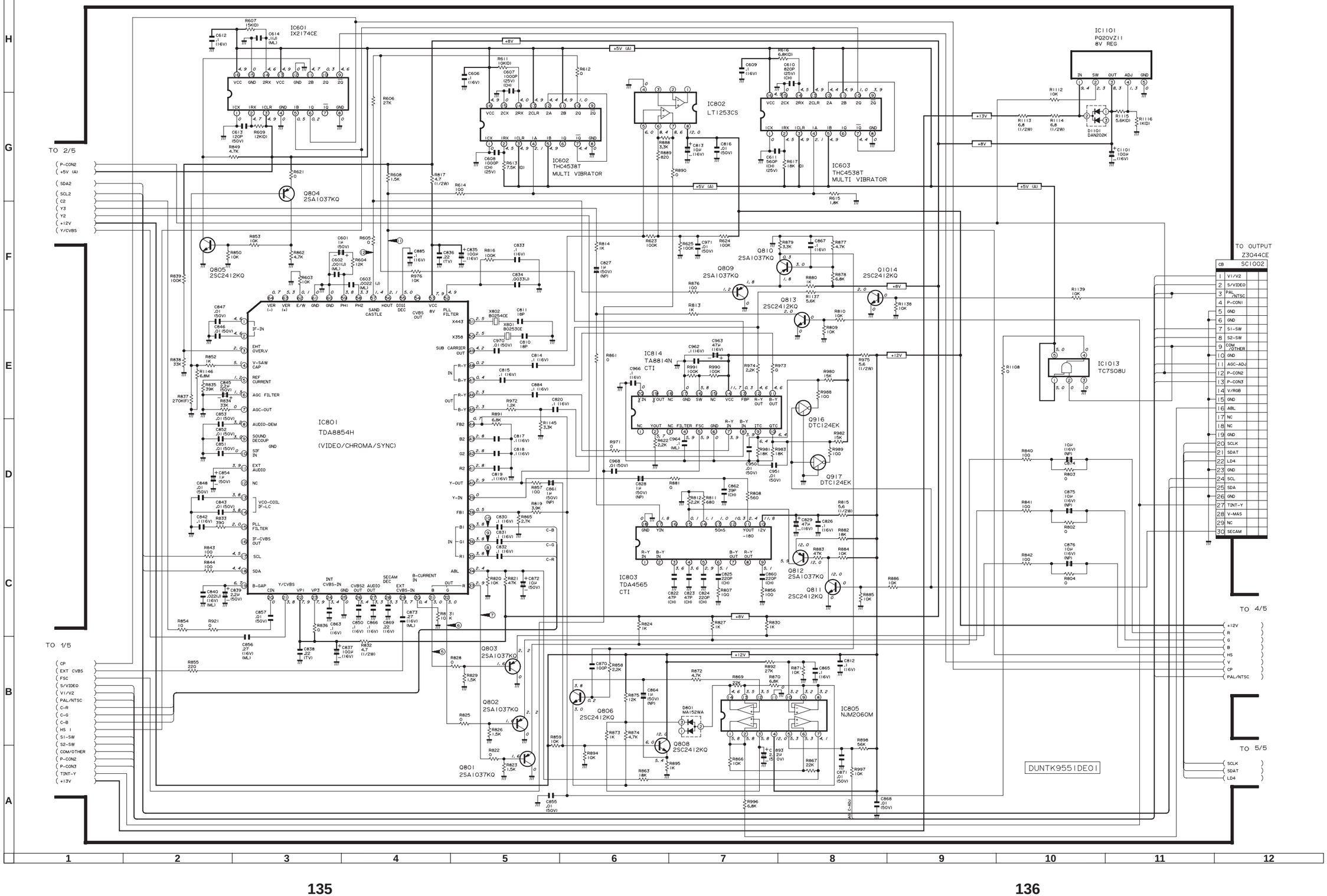
■ SIGNAL UNIT-1/5 / SIGNALEINHEIT-1/5



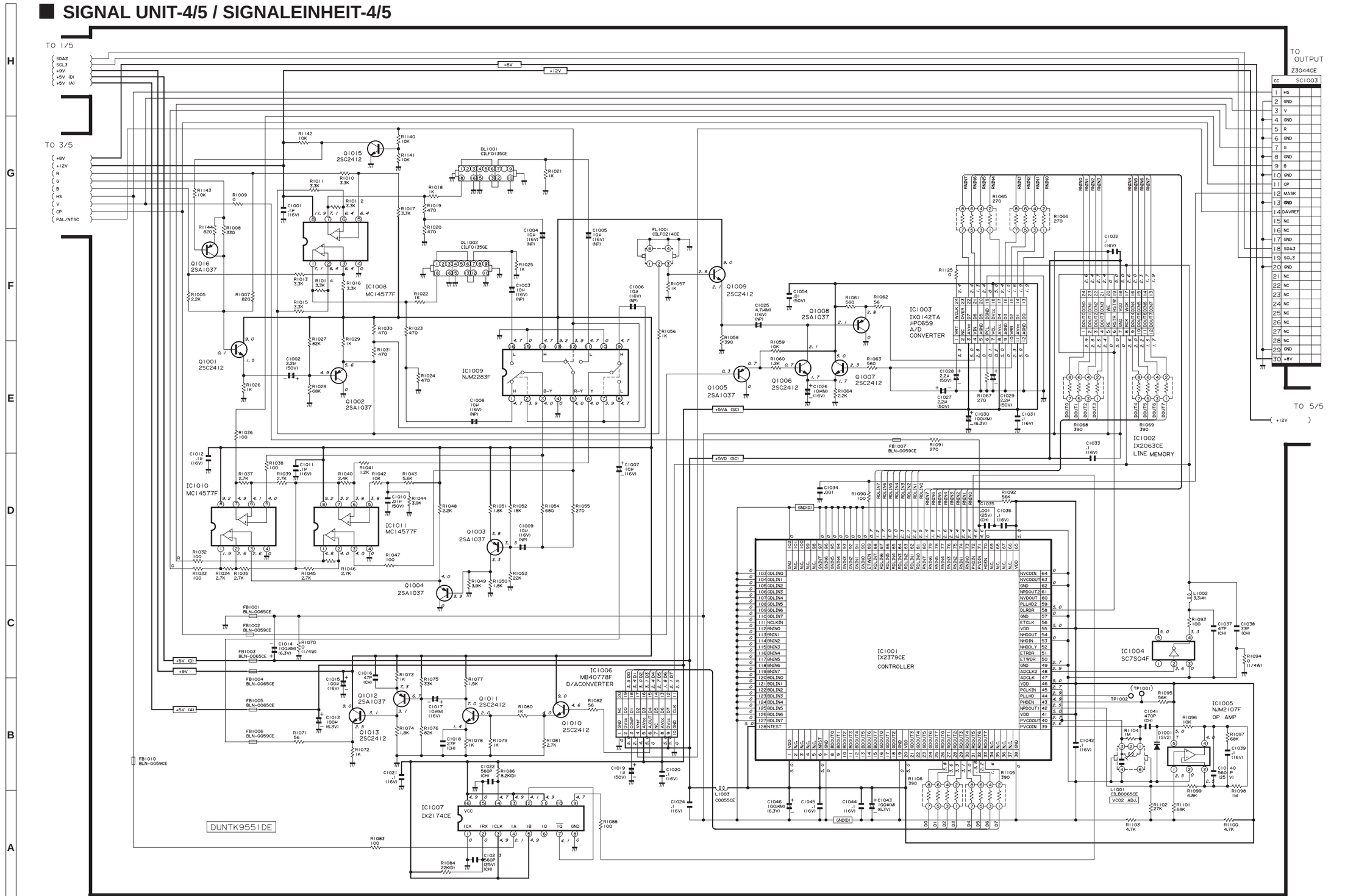
SIGNAL UNIT-2/5 / SIGNALEINHEIT-2/5



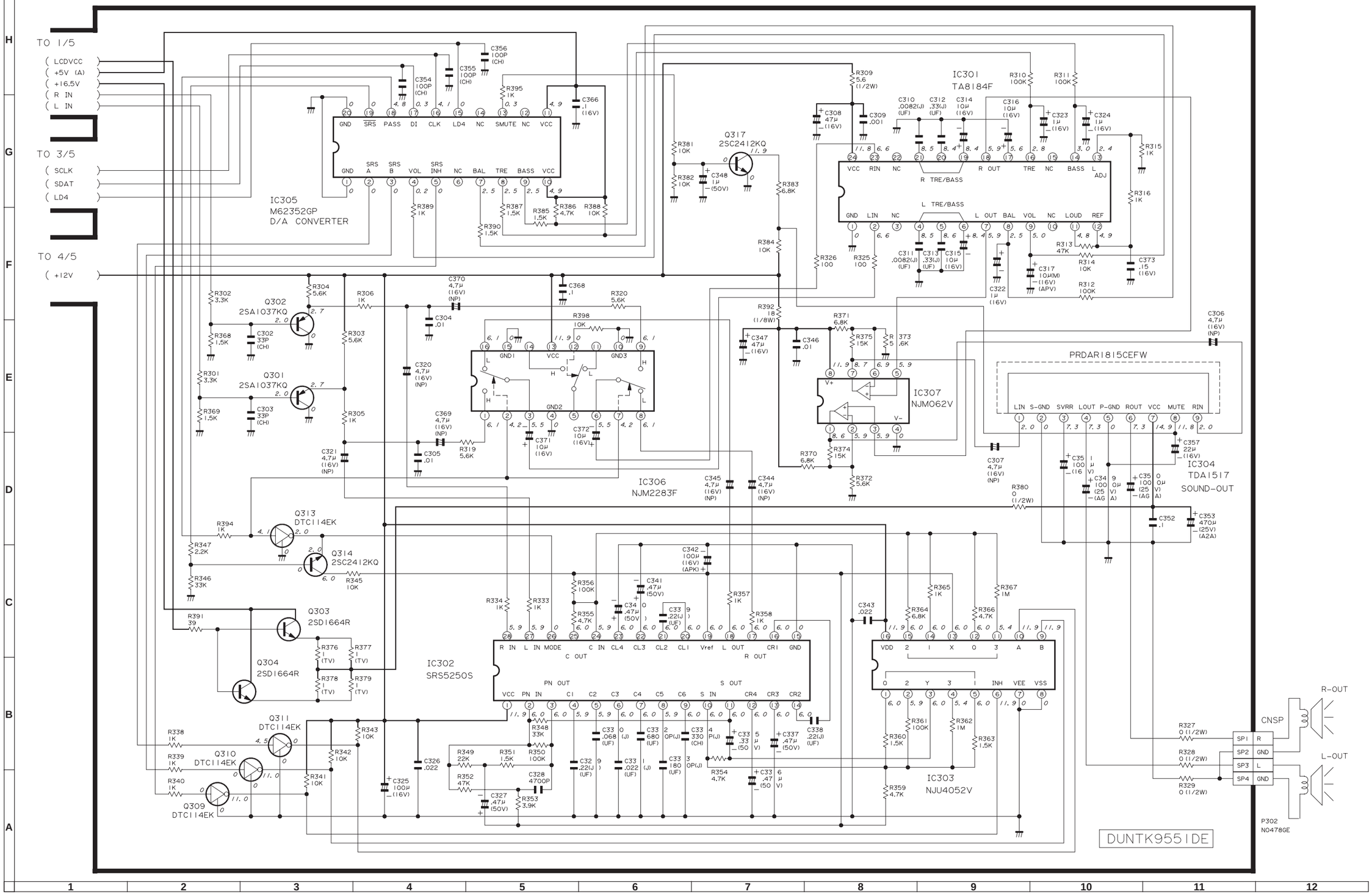
■ SIGNAL UNIT-3/5 / SIGNALEINHEIT-3/5



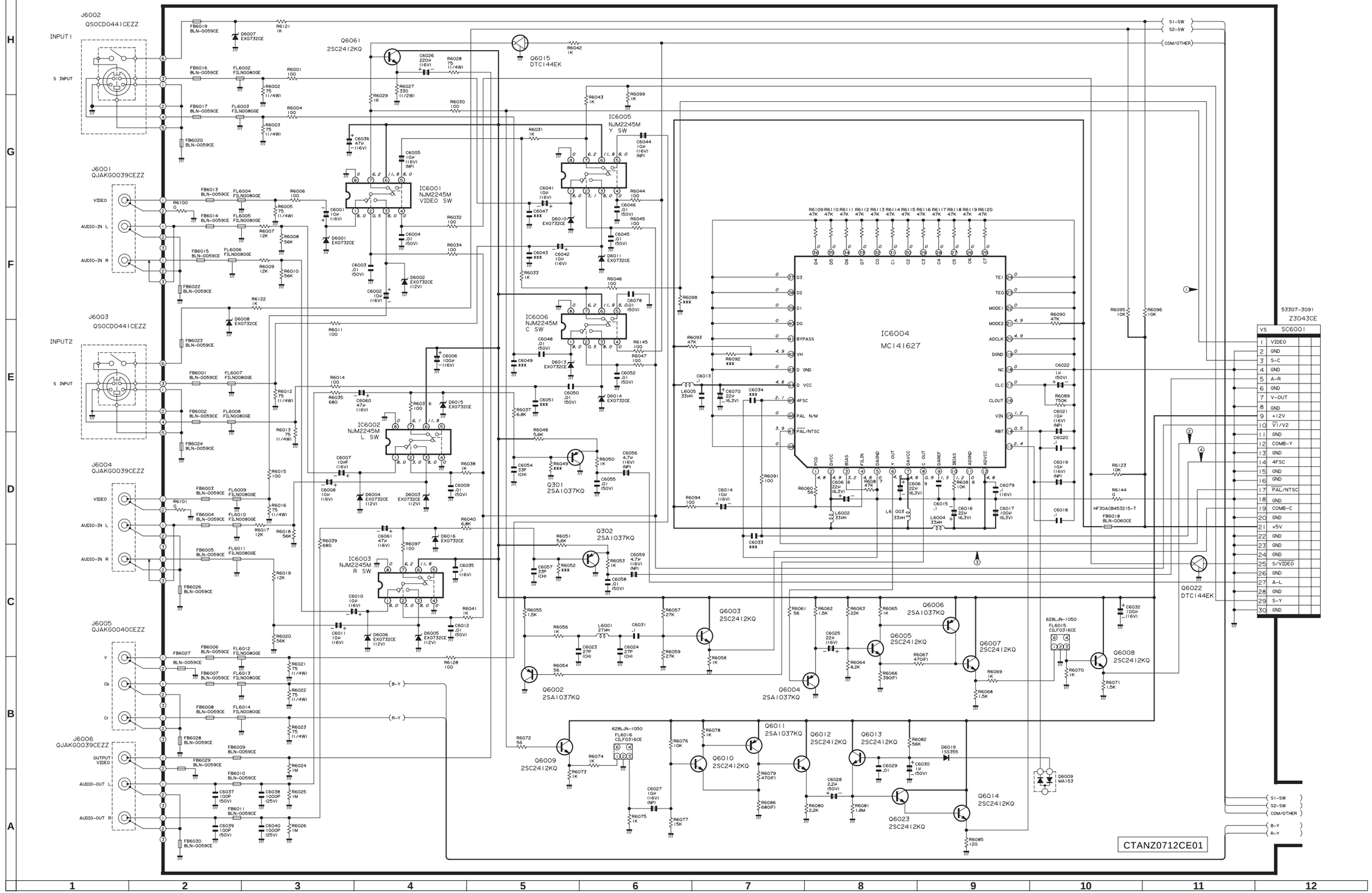
SIGNAL UNIT-4/5 / SIGNALEINHEIT-4/5



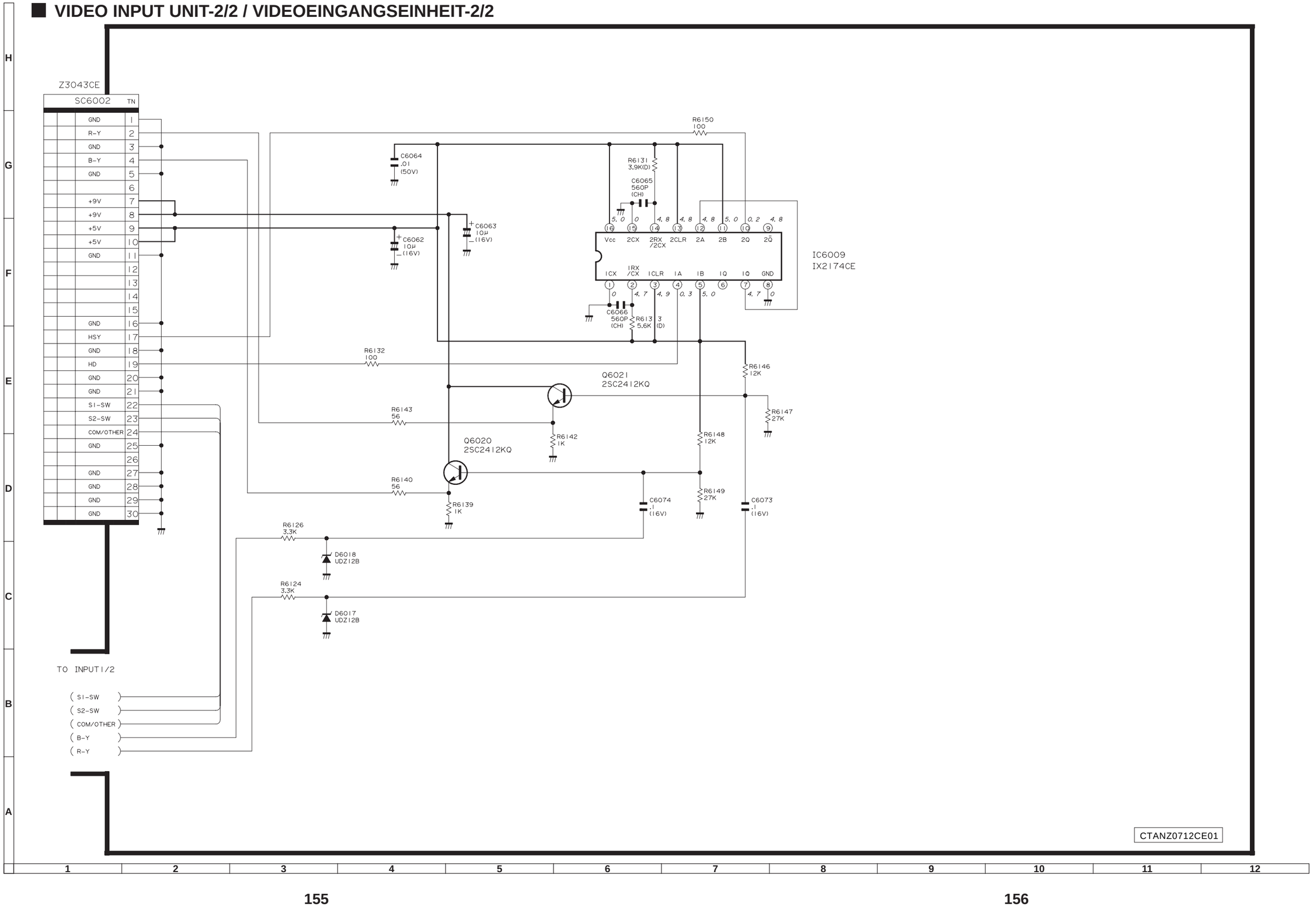
SIGNAL UNIT-5/5 / SIGNALEINHEIT-5/5



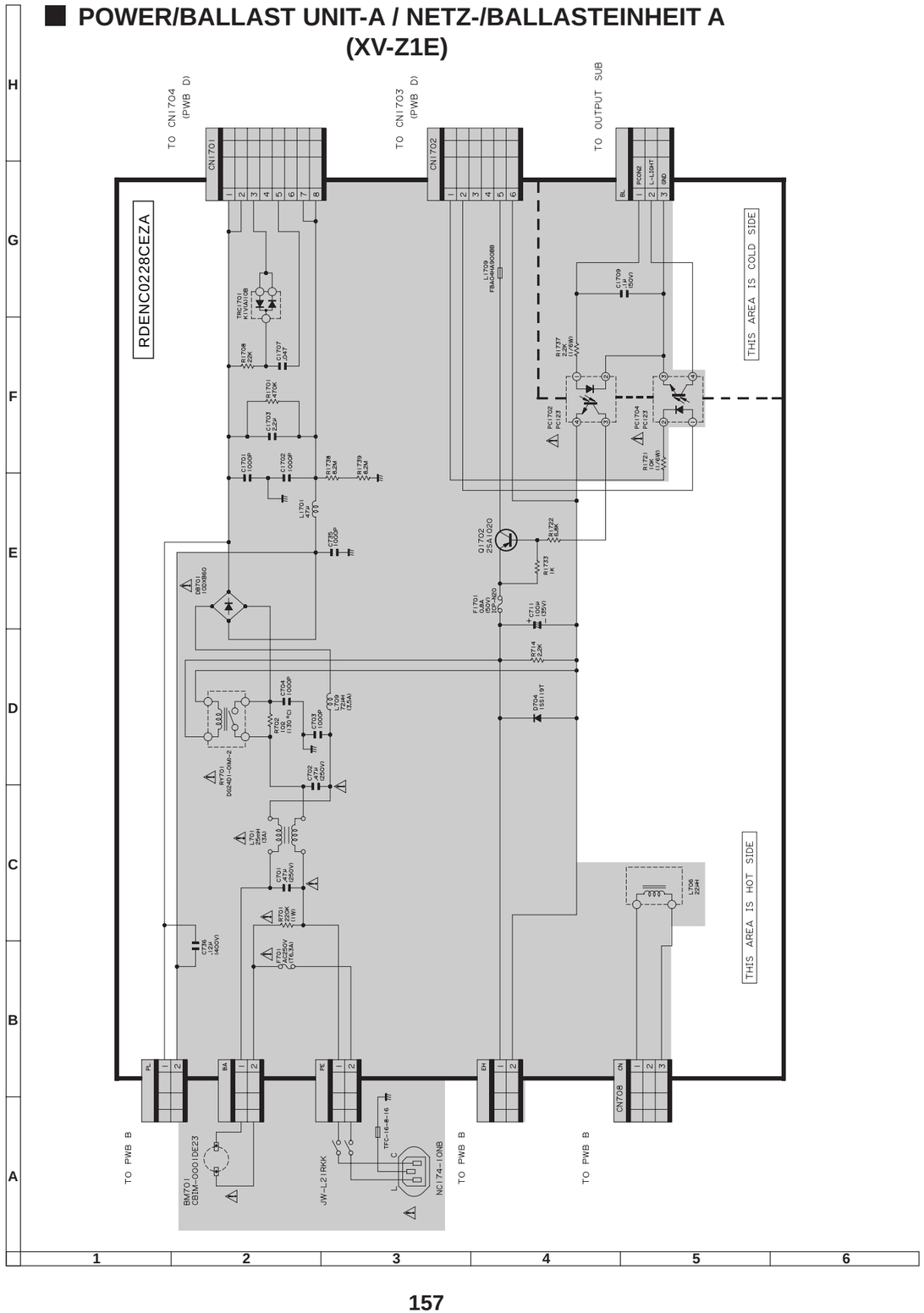
■ VIDEO INPUT UNIT-1/2 / VIDEOEINGANGSEINHEIT-1/2



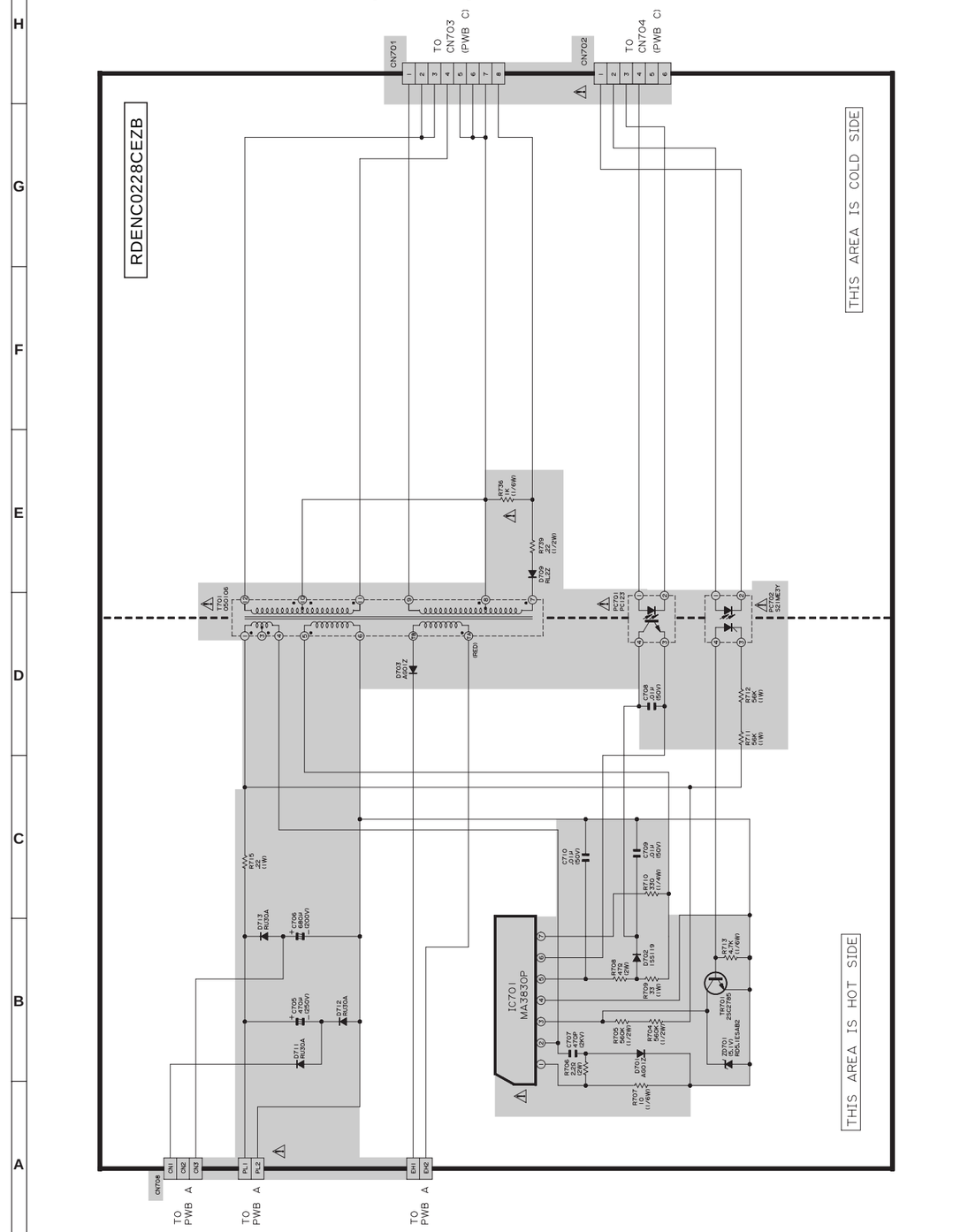
■ VIDEO INPUT UNIT-2/2 / VIDEOEINGANGSEINHEIT-2/2



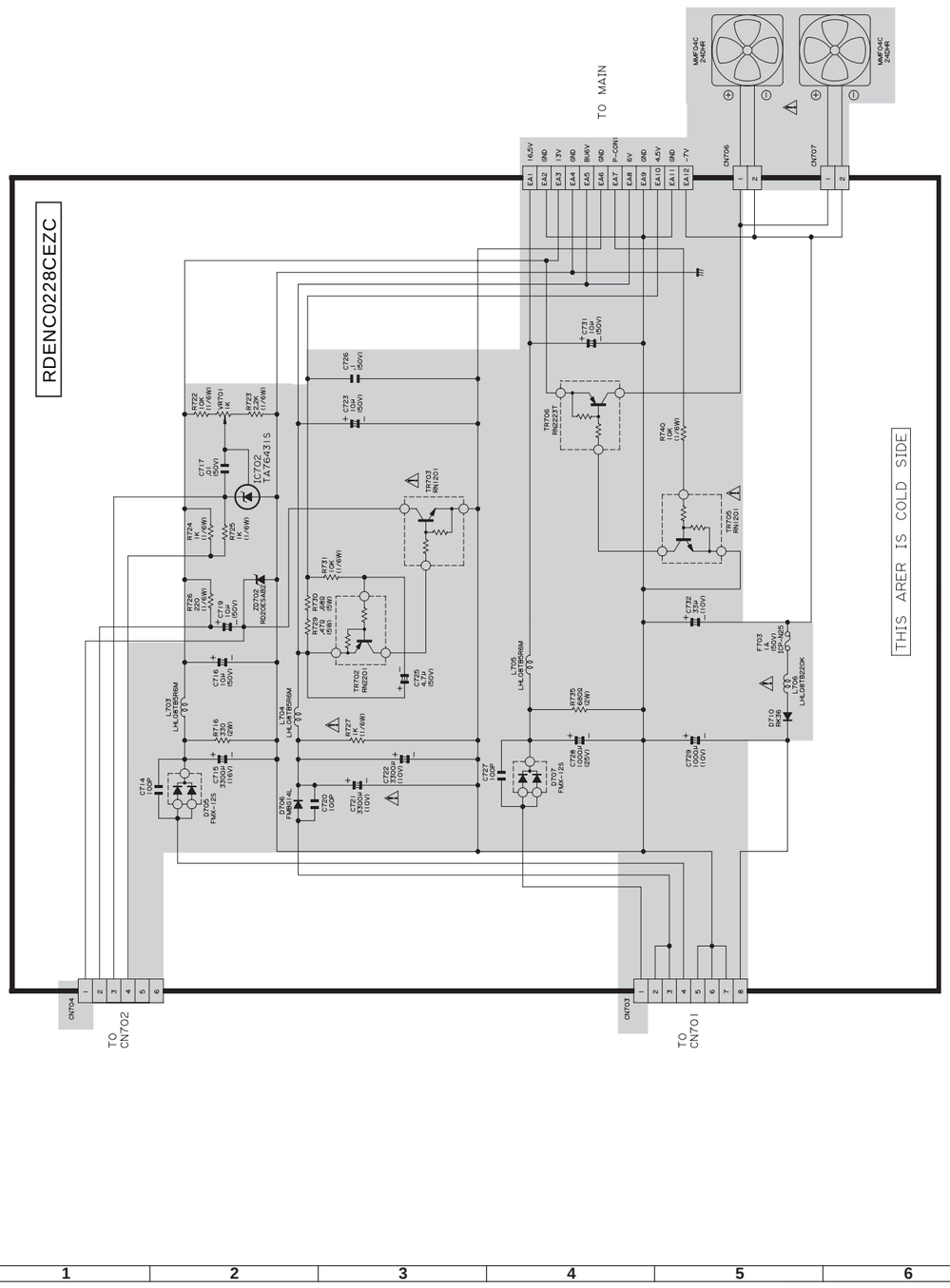
■ POWER/BALLAST UNIT-A / NETZ-/BALLASTEINHEIT A (XV-Z1E)



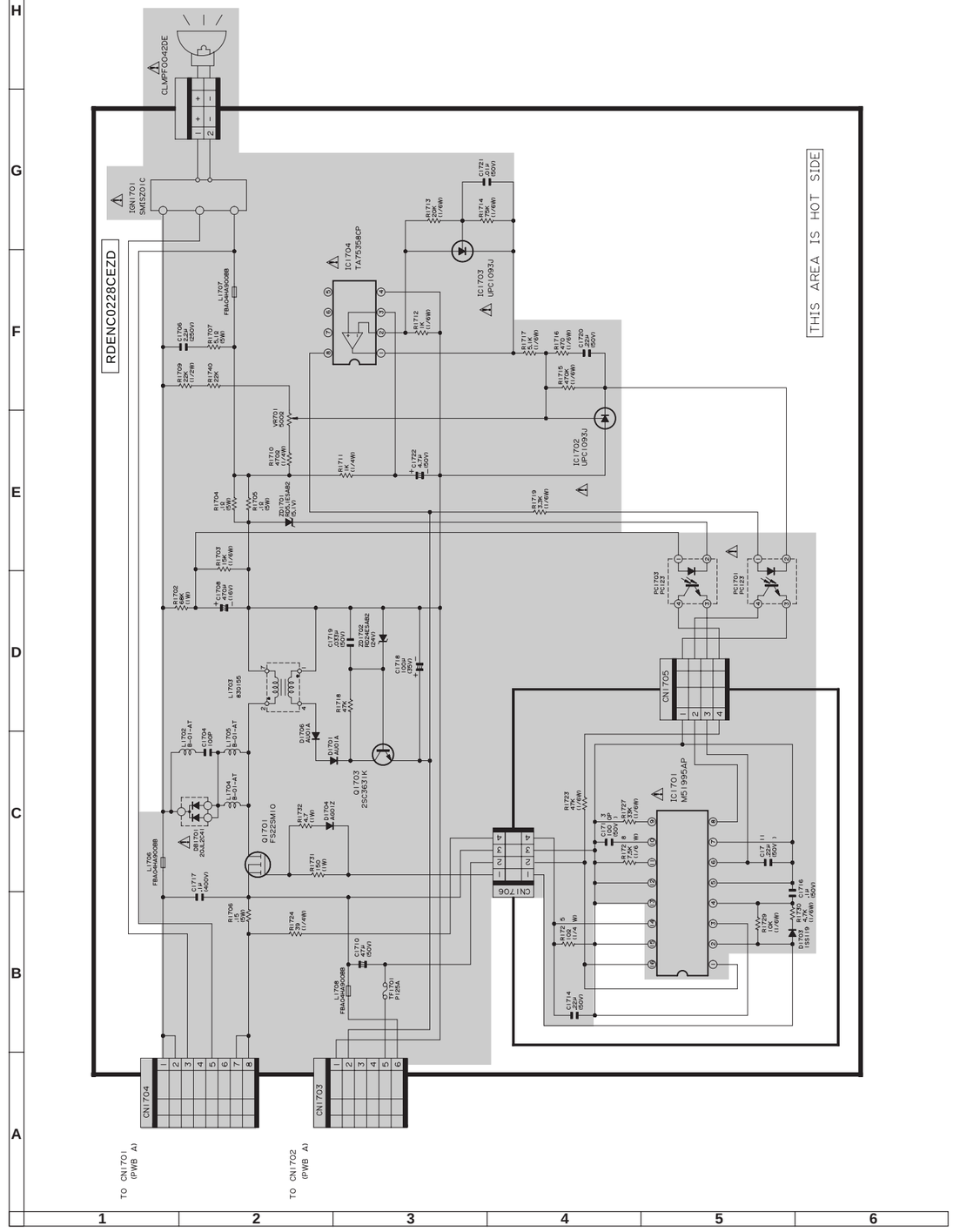
■ POWER/BALLAST UNIT-B / NETZ-/BALLASTEINHEIT B (XV-Z1E)



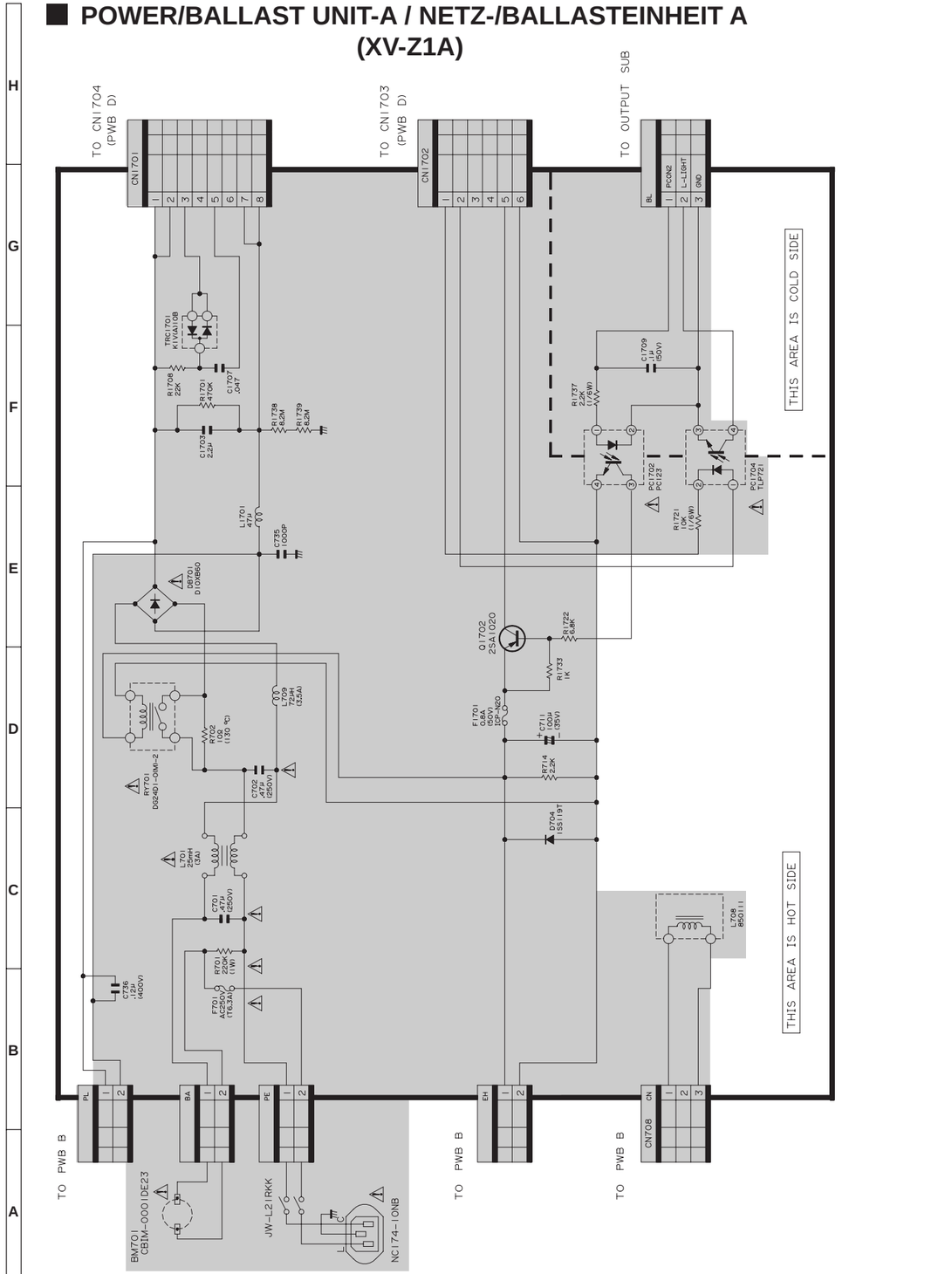
■ POWER/BALLAST UNIT-C / NETZ-/BALLASTEINHEIT C (XV-Z1E)



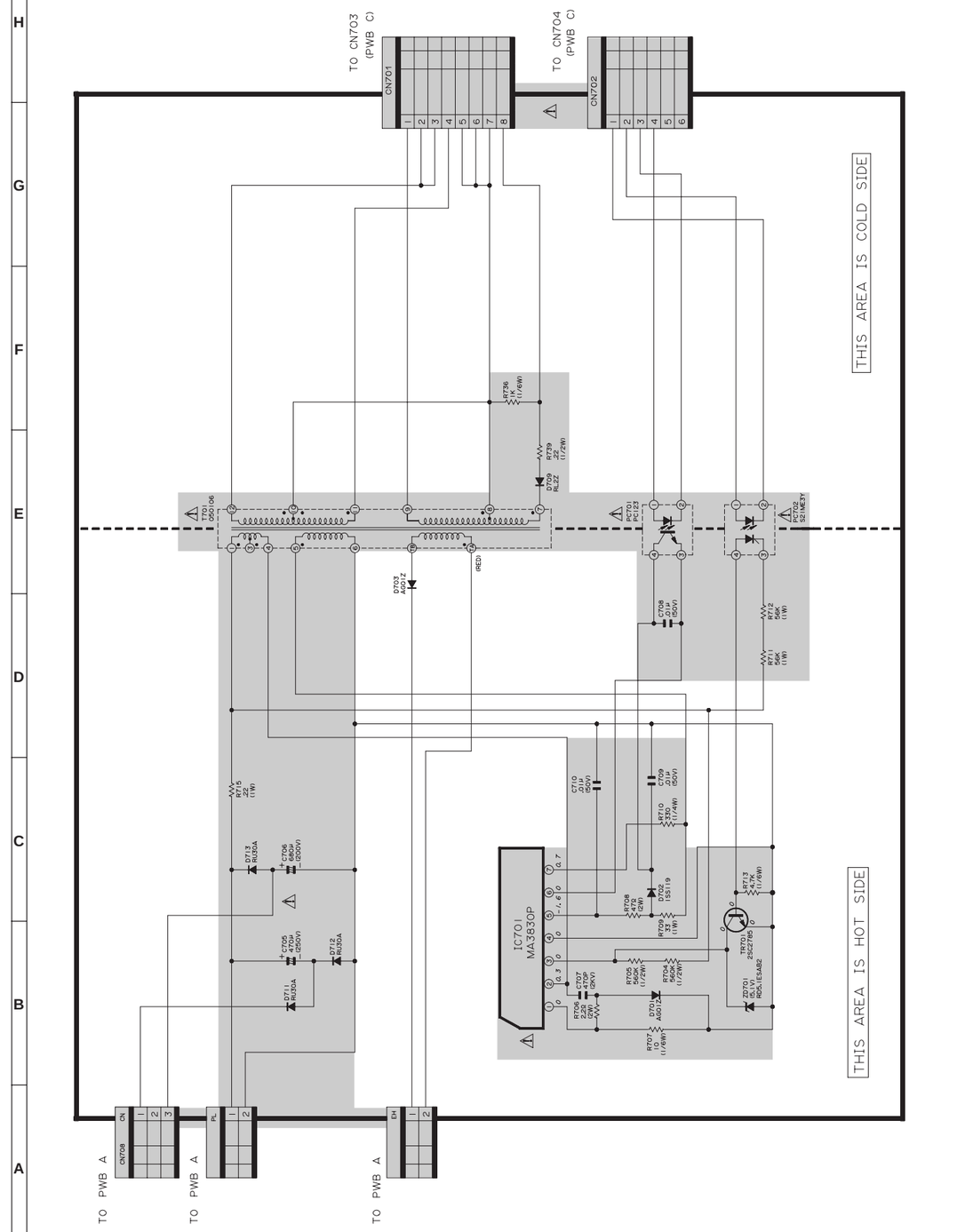
■ POWER/BALLAST UNIT-D / NETZ-/BALLASTEINHEIT D (XV-Z1E)



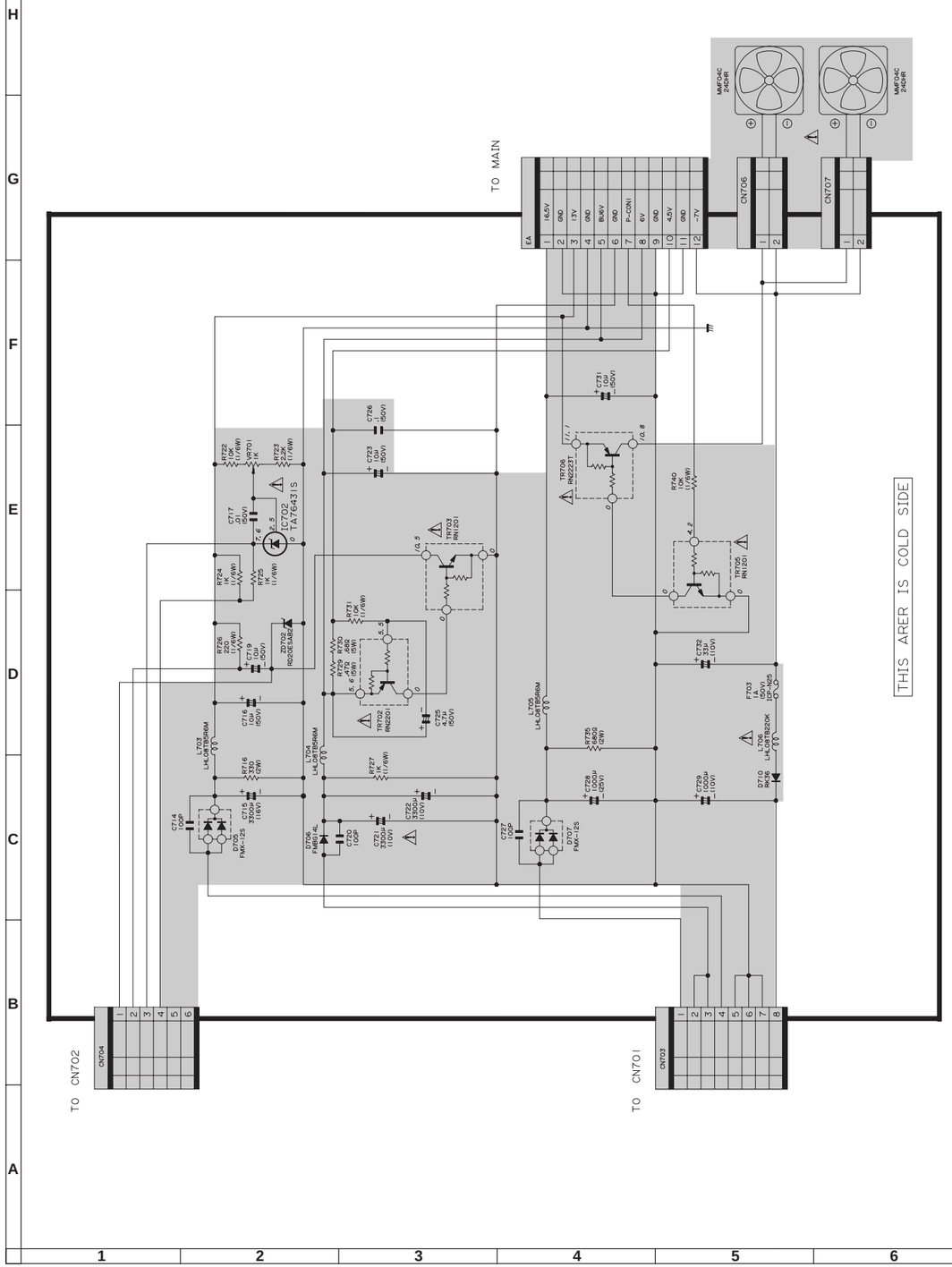
■ POWER/BALLAST UNIT-A / NETZ-/BALLASTEINHEIT A (XV-Z1A)



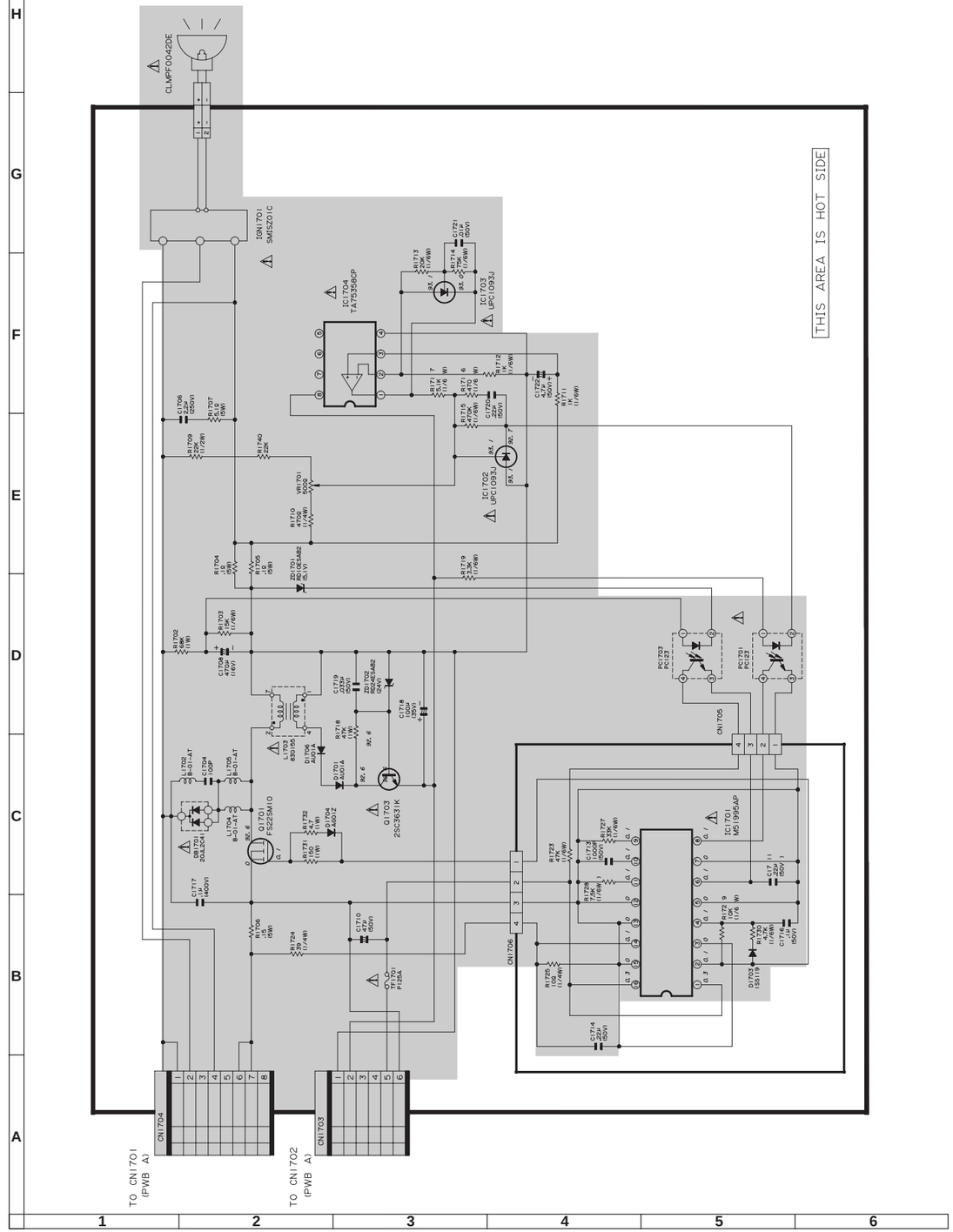
■ POWER/BALLAST UNIT-B / NETZ-/BALLASTEINHEIT B (XV-Z1A)



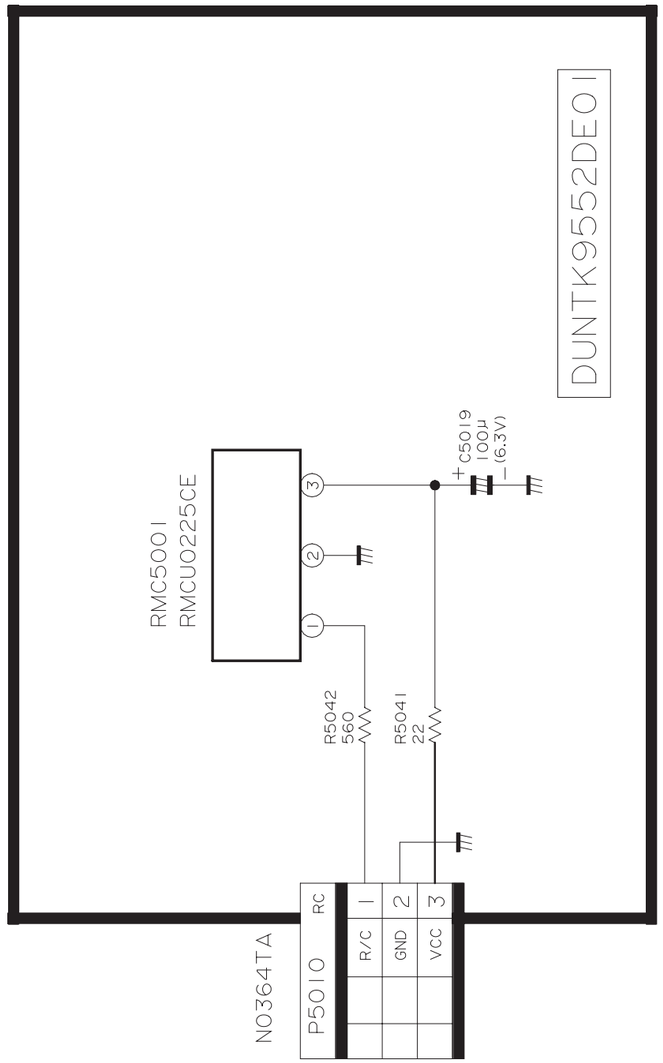
■ POWER/BALLAST UNIT-C / NETZ-/BALLASTEINHEIT C (XV-Z1A)



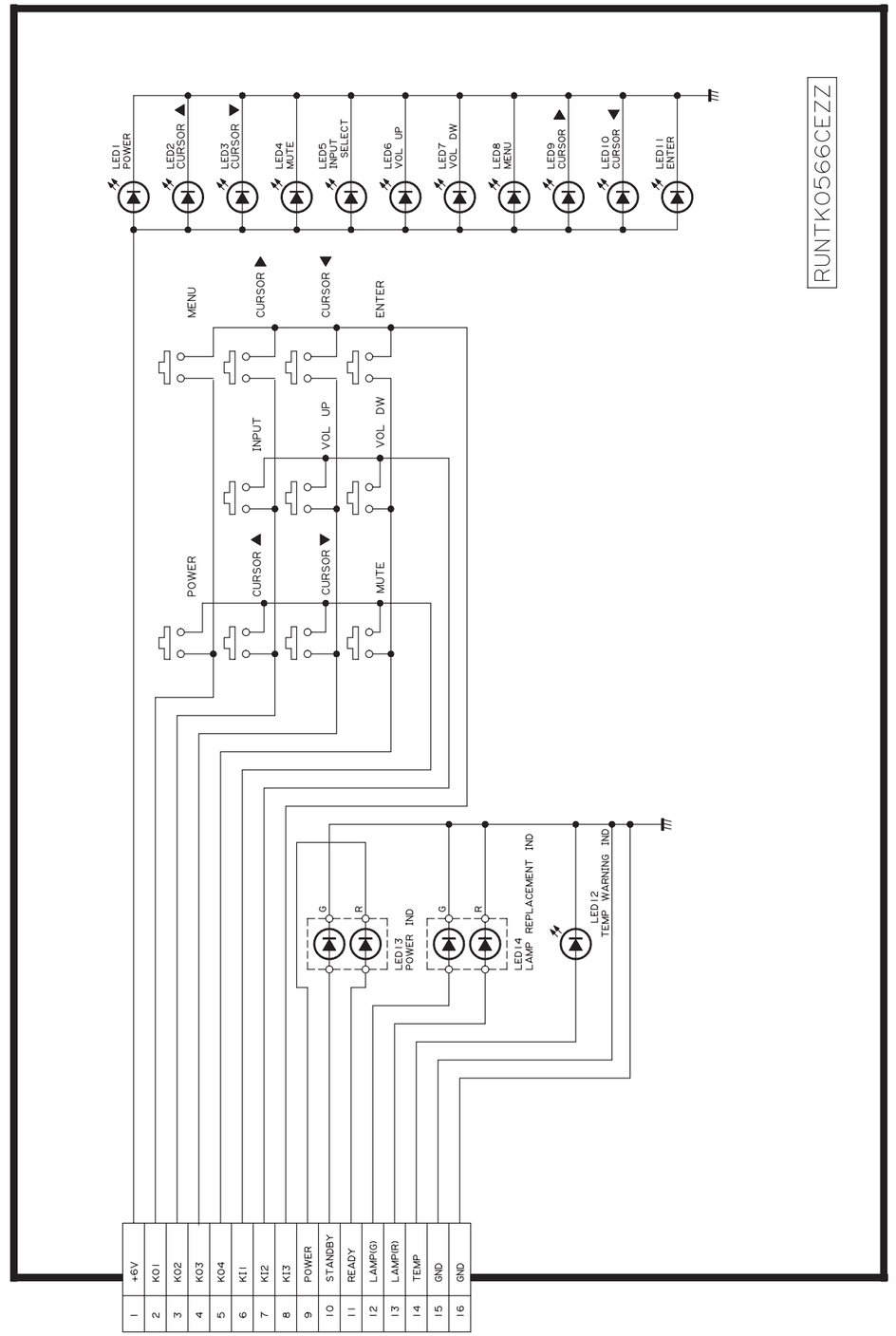
■ POWER/BALLAST UNIT-D / NETZ-/BALLASTEINHEIT D (XV-Z1A)



■ INFRARED R/C RECEIVER UNIT / INFRAROT-EMPFÄNGEREINHEIT



■ OPERATION KEY UNIT / BEDIENUNGSTASTENEINHEIT



PARTS LIST

PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual: electrical components having such features are identified by "⚠" in the Replacement Parts Lists.
The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION
5. CODE
6. QUANTITY

MARK ★: SPARE PARTS-DELIVERY SECTION

ERSATZTEILLISTE

AUSTAUSCH VON TEILEN

Ersatzteile, die besondere Sicherheitseigenschften haben, sind in dieser Anleitung markiert. Elektrische Komponenten mit solchen Eigenshaften sind in den Ersatzteil durch "⚠" gekenn-zeichnet.
Der Gebrauch von Ersatzteilen, die nicht deselben Sicherheits-eigenschaften haben wie die vom Hersteller empfohlenen ud in der Bedienungsanleitung angegebenen, können zur Ursache von Blitzeinschlägen, Bränden und anderen Gefahren werden.

"WIE MAN ERSATSTEILE BESTELLT"

Damit Ihre Bestellung promt und korrekt ausgeführt wird, geben Sie bitte folgende Informationen.

1. MODELL NR.
2. REF. NR.
3. ERSATZTEIL NR.
4. BESCHREIBUNG
5. KODE
6. QUANTITÄT

MARKIERUNG ★: ERSATZTEILE-LIEFERUNG

Ref. No.	Part No.	★	Description	Code

LCD PANELS

NOTE: THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY.

	RLCDP0049CEZZ	J	LCD Module Unit, Red	DU
	RLCDP0050CEZZ	J	LCD Module Unit, Green	DU
	RLCDP0051CEZZ	J	LCD Module Unit, Blue	DU

PRINTED WIRING BOARD ASSEMBLIES (NOT REPLACEMENT ITEM)

MODEL XV-Z1E

DUNTK9551DE01	–	Signal Unit (For Europe)	—
DUNTK9551DE03	–	Signal Unit (For U.K.)	—
DUNTK9551DE04	–	Signal Unit (For Australia and New Zealand)	—
DUNTK9553DE01	–	Output Unit (For Europe)	—
DUNTK9553DE03	–	Output Unit (For U.K.)	—
DUNTK9553DE04	–	Output Unit (For Australia and New Zealand)	—
DUNTK9554DE01	–	Output Sub Unit (For Europe)	—
DUNTK9554DE03	–	Output Sub Unit (For U.K.)	—
DUNTK9554DE04	–	Output Sub Unit (For Australia and New Zealand)	—
DUNTK9552DE01	–	Infrared R/C Receiver Unit (For Europe)	—
DUNTK9552DE03	–	Infrared R/C Receiver Unit (For U.K.)	—
DUNTK9552DE04	–	Infrared R/C Receiver Unit (For Australia and New Zealand)	—
RUNTK0566CEZZ	–	Operation Key Unit	—
CTANZ0712CE01	–	Video Input Unit	—
CDENC0228CE02	–	Power/Ballast Unit	—

MODEL XV-Z1A

DUNTK9551DE02	–	Signal Unit	—
DUNTK9553DE02	–	Output Unit	—
DUNTK9554DE02	–	Output Sub Unit	—
DUNTK9552DE02	–	Infrared R/C Receiver Unit	—
RUNTK0566CEZZ	–	Operation Key Unit	—
CTANZ0712CE01	–	Video Input Unit	—
CDENC0240CE02	–	Power/Ballast Unit	—

Ref. No.	Part No.	★	Description	Code

DUNTK9551DE01/02/03/04 SIGNAL UNIT

INTEGRATED CIRCUITS

IC301	VHiTA8184F/-1	J	TA8184F	AN
IC302	VHiSRS5250S-1	J	SRS5250S	AY
IC303	VHiNJU4052V-1	J	NJU4052BV	AF
IC304	VHiTDA1517/-1	J	TDA1517/N2	AL
IC305	VHiM62352GP-1	J	M62352GP	AQ
IC306	VHiNJM2283F-1	J	NJM2283M	AF
IC307	VHiNJM062V/-1	J	NJM062V	AG
IC401	VHiNJM2240M-1	J	NJM2240M	AG
IC402	VHiNJM2240M-1	J	NJM2240M	AG
IC403	VHiLT1253CS-1	J	LT1253CS8	AT
IC404	VHiMM1041XM-1	J	MM1041XM	AG
IC405	VHiNJM2233V-1	J	NJM2233V	AE
IC406	VHiBA7046F/-1	J	BA7046F	AF
IC408	VHiNJM2283F-1	J	NJM2283M	AF
IC411	VHiTC7S08U/-1	J	TC7S08FU	AE
IC412	VHiTC7S04U/-1	J	TC7S04FU	AE
IC418	VHiTC4W53U/-1	J	TC4W53FU	AF
IC601	RH-iX2174CEZZ	J	MC74HC4538FR	AG
IC602	VHiTHC4538T-1	J	TC74HC4538AFT	
IC603	VHiTHC4538T-1	J	TC74HC4538AFT	
IC801	VHiTDA8854H-1	J	I.C.	BE
IC802	VHiLT1253CS-1	J	LT1253CS8	AT
IC803	VHiTDA4565/-1	J	TDA4565/V6	AN
IC805	VHiNJM2060M-1	J	NJM2060M	AE
IC806	VHiTC90A11F-1	J	TC90A11F	AZ
IC807	VHiM518221S-1	J	MSM518221-30JS	BA
IC808	VHiPST600DM-1	J	IC-PST600DMT	AE
IC811	VHiTA1226N/-1	J	TA1226N	AW
IC812	VHiLT1253CS-1	J	LT1253CS8	AT
IC814	VHiTA8814N/-1	J	TA8814N	AV
IC816	VHiNJM2283F-1	J	NJM2283M	AF
IC1001	RH-iX2379CEZZ	J	iX2379CE	AY
IC1002	RH-iX2063CEZZ	J	UPD42102G-3	AV
IC1003	RH-iX0142TAZZ	J	UPC659G	AU
IC1004	VHiSC7S04F/-1	J	SC7S04F	AC
IC1005	VHiNJM2107F-1	J	NJM2107F	AE
IC1006	VHiMB40778F-1	J	MB40778PF	AN
IC1007	RH-iX2174CEZZ	J	MC74HC4538FR	AG
IC1008	VHiMC14577F-1	J	MC14577BF	AG
IC1009	VHiNJM2283F-1	J	NJM2283M	AF
IC1010	VHiMC14577F-1	J	MC14577BF	AG
IC1011	VHiMC14577F-1	J	MC14577BF	AG
IC1013	VHiTC7S08U/-1	J	TC7S08FU	AE
IC1014	RH-iX2204CEZZ	J	PQ12TZ11	AG
IC1015	VHiPQ20VZ11-1	J	PQ20VZ11	AH
IC1016	VHiPQ05TZ11-1	J	PQQ05TZ11	AH
IC1017	VHiPQ05TZ11-1	J	PQ05TZ11	AH
IC1101	VHiPQ20VZ11-1	J	PQ20VZ11	AH
IC3003	VHiCXA1839Q-1	J	I.C.	AZ

TRANSISTORS

Q301	VS2SA1037KQ-1	J	2SA1037KQ	AA
Q302	VS2SA1037KQ-1	J	2SA1037KQ	AA
Q303	VS2SD1664R/-1	J	2SD1664R	AC
Q304	VS2SD1664R/-1	J	2SD1664R	AC
Q309	VSDTC114EK/-1	J	DTC114EK	AB
Q310	VSDTC114EK/-1	J	DTC114EK	AB
Q311	VSDTC114EK/-1	J	DTC114EK	AB
Q313	VSDTC114EK/-1	J	DTC114EK	AB
Q314	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q317	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q401	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q402	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q403	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q404	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q405	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q406	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q407	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q408	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q411	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q416	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q801	VS2SA1037KQ-1	J	2SA1037KQ	AA
Q802	VS2SA1037KQ-1	J	2SA1037KQ	AA
Q803	VS2SA1037KQ-1	J	2SA1037KQ	AA
Q804	VS2SA1037KQ-1	J	2SA1037KQ	AA
Q805	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q806	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q808	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q809	VS2SA1037KQ-1	J	2SA1037KQ	AA
Q810	VS2SA1037KQ-1	J	2SA1037KQ	AA
Q811	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q812	VS2SA1037KQ-1	J	2SA1037KQ	AA
Q813	VS2SC2412KQ-1	J	2SC2412KQ-	AA
Q814	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q815	VS2SA1037KQ-1	J	2SA1037KQ	AA
Q816	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q817	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q903	VS2SA1037KQ-1	J	2SA1037KQ	AA
Q905	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q906	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q907	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q910	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q911	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q912	VS2SA1037KQ-1	J	2SA1037KQ	AA
Q913	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q915	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q916	VSDTC124EK/-1	J	DTC124EK	AB
Q917	VSDTC124EK/-1	J	DTC124EK	AB
Q1001	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q1002	VS2SA1037KQ-1	J	2SA1037KQ	AA
Q1003	VS2SA1037KQ-1	J	2SA1037KQ	AA
Q1004	VS2SA1037KQ-1	J	2SA1037KQ	AA
Q1005	VS2SA1037KQ-1	J	2SA1037KQ	AA
Q1006	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q1007	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q1008	VS2SA1037KQ-1	J	2SA1037KQ	AA
Q1009	VS2SC2412KQ-1	J	2SC2412KQ	AA
Q1010	VS2SC2412KQ-1	J	2SC2412KQ	AA